Turn trash into peace!

Trash for Peace Activity Book

WWW.TRASHFORPEACE.ORG

Enjoy our activity book, filled with with team builders and 68 hands-on activities!

WWW.TRASHFORPEACE.ORG

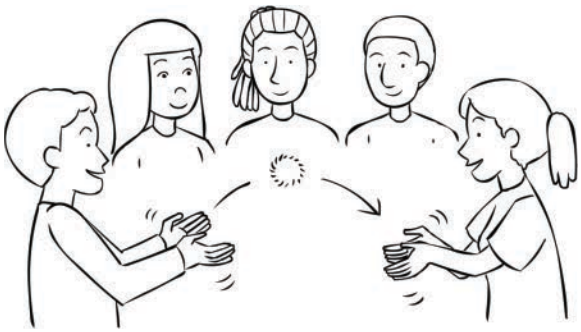
Icebreakers & Team Builders:
Activities and interactive games

Character Clue

Each student must write one fact about themselves onto a small slip of paper. Everyone has a few minutes to fold it and place it into a bowl/hat. Each student gets to pick a note from the bowl/hat and find the person who wrote it.

Name Toss

The objective of this activity is to gradually learn the names of all those in the group. This is achieved by first throwing a soft object (small repurposed material, ball, toy, etc.) around/across the circle, with each person saying their name when they catch the object. After a few minutes of this, as well as saying their own name, participants then also say the name of the person they choose to throw to. Participants cannot throw to the person directly beside them. Eventually, the game can be made more difficult by throwing in more objects.



Names in Motion

Have the group stand in a circle and one-by-one students will say their names. The student must choose a motion/movement/dance to do while saying their name. The entire group must all repeat after that student along with doing the motion/movement/dance. After everyone in the group has introduced themselves, the group goes around in a circle in the same order, shouting everyone's name and their doing their motion.

If

Ask the group to sit in a circle. Write 20 'IF' questions on cards and place them (question down) in the middle of the circle. The first person takes a card, reads it out and gives their answer, comment or explanation. The card is returned to the bottom of the pile before the next person takes their card.

People Bingo

https://icebreakerideas.com/wp-content/uploads/2016/02/Bingo.png
http://www.newbingosites.net/wp-content/uploads/2015/10/il_fullxfull.674011028_zlk8.jpg

Give every student their own People Bingo grids provided above or feel free to make your own! Supply pens/pencils. Encourage the group to mix, talk to everyone to try and complete their card. If one of the items listed on the bingo card relates to the person they are talking with, have them sign their name in that box.

End the activity after 10 minutes and review some of the interesting facts the group has discovered about each other. You can add your own statements appropriate for your group.

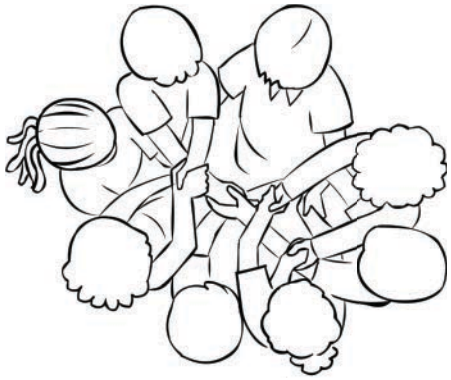
A Great Wind Blows

Arrange chairs in a circle, facing the middle. Make sure there is one less chair than there are students (as in musical chairs). All the children sit down except one student who stands in the middle. The student in the middle calls out "A great wind blows for everyone who....", fills in the blank with a statement that will affect some of the group (see ideas below). Anyone who is affected must stand up and find another chair which is at least 2 chairs away from their own. The student left without a chair is now in the **middle and must determine the next line for the great wind to blow** more difficult by throwing in more objects.

A great wind blows for everyone who likes to eat mac & cheese
A great wind blows for everyone who is wearing red
A great wind blows for everyone who has a brother
A great wind blows for everyone who likes to watch cartoons

Human Knot

https://www.youtube.com/watch?v=gbCPau5YL0g



This activity works best if groups are no larger than 10 people. If your group is larger than 10, break them up into smaller groups.

Have the group of students stand in a circle reach in their left hand and grab whichever hand they meet. While holding onto that left hand, have the students reach in their right hand and grab whichever hand they meet. The group must communicate with one another and untangle the knot without letting go of anybody's hand.

A Piece of Your Face

This activity is fun for people of all ages. Everyone in the group will get a sheet of blank white paper and everyone should pick one color crayon/marker/colored pencil and stick with that color throughout the entire activity. Give the group 10 seconds to find a partner. Once everyone is partnered up, have the partners switch papers. Make them draw the eyes and eyebrows of their partner. When everyone is done, have them find another partner within 10 seconds. Keep repeating this until each person has a complete portrait of their face.

You can divide the sections as you wish, also take into consideration how large your group is and how much time you would like to dedicate to this activity. For example, 5 pairs could draw eyes & eyebrows, nose, lips, head & ears, hair.

https://youtu.be/19YVS-yu7cQ

Ninja Destruction

This activity is fun for people of all ages. Everyone in the group should stand in a circle and on the count of 3 yell NINJA DESTRUCTION and jump into their ninja pose.

Everyone's hands should be in front of them or to their side, and not behind their backs.

Go around in a circle with people taking turns "striking", one at a time, and moving their arms in one quick motion to try to hit someone's hand on either side of them.
After the strike, everyone must freeze in whatever position they are in. If the hand got hit, the person must put that hand behind their back.
People are "out" when both hands have been struck and have been put behind their back. The last person standing is the winner!

Other youth group icebreaker games can be found at:

http://youthgroupgames.com.au/youth-group-icebreaker-games/

http://www.signupgenius.com/church/youth-group-icebreakers.cfm

Recycle +

WWW.TRASHFORPEACE.ORG

Bin Building:

Building your own recycle bin out of trash for your classroom

Approximate time to complete activity: 1-3 hours (depending on bin decoration)

Big Idea

A recycle bin made out of trash is a great educational tool and is a constant reminder to reduce, reuse, and rethink waste everyday.

Learning Objectives

1. To build a recycle bin out of trash
2. To learn about the importance of sustainable development
3. To learn about the importance of reducing, reusing, AND THEN recycling.

Key Words

Environmental sustainability, reduce, reuse, recycle, sustainable development

Materials

1. Bin kit (including manual, frame, bottles, string, and any paints or other materials you would like to decorate).
2. Handouts of the questions for the stations
3. Pens and pencils, scissors, markers

Preparation

Make sure you have all the materials necessary, as well as a tarp or other material to prevent spills and a large mess! Prepare the stations, as described in the procedure section.

Procedure

1. Divide class into four groups. Each group will have a set of the questions below (the answer key you can put on the back, or hand out later).
2. The Bottle Station will be prepping the plastic bottles (cutting the bottoms off some of the bottles, and trying to find a good pattern for the bin). The Bin Decorating Station will be creating signage for the bin and deciding how to decorate it, either by creating drawings to attach to it or painting it. The Bin Prep Station will be organizing the string and starting to put the bottles together into the bin. The Innovation Station will be brainstorming more ideas for how to use trash to create functional art for the classroom or at home.
3. Students will work at their stations and answer the questions pertaining to that station while there. They will have 15 minutes. They will then rotate to the next station.
4. Until the bin is finished, keep rotating the students, or elongate the time at each station if students are not wanting to rotate.
5. When the bin is complete, bring everyone together and go over the answers to the questions.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
Bottle Station 1. How long does it take a plastic bottle to decompose? 2. Is this bottle recyclable? All of it? 3. What is this bottle made out of? 4. Guess: how many plastic bottles do people in the US use on average each week?	1. ~500 years 2. NONE of it, truly 3. Oil 4. Half a billion, enough to circle the globe 5 times!
Bin Prep Station 1. What materials are we using to create this bin? 2. Where do they come from? 3. Why is it important to divert these materials from the landfill? 4. Where should we put this bin to make sure that it is most functional (recycles the most amount of material possible)?	1. Answers vary 2. Metro, the city 3. Reduce, reuse, rethink 4. Answer will vary by site, likely a very visible, high foot-traffic area.
Bin Decorating Station 1. What materials around your house could you repurpose? 2. How many bottles will fit along each side of the bin (width)? 3. How many bottles will fit along the height of each bin? 4. How many bottles total are you diverting from the landfill with this bin?	1. Answers vary 2. 4 3. 4-5 4. ~60
Innovation Station 1. What is the landfill? 2. Where is our landfill in Portland? 3. What is recycling? 4. Why is it important to reduce, reuse, AND THEN recycle?	1. Where our trash goes to rot & soil 2. Arlington, OR, past the Dalles on I-84 3.Converting waste into a usable material, turning a used item into a brand new one, usually the exact same item. 4. Recycling still is not a perfect process. It uses energy, water, and material; reducing or reusing do not.

Books & Resources

www.trashforpeace.org
http://www.oregonmetro.gov/index.cfm/go/by.web/id=28609
http://www.oregonmetro.gov/index.cfm/go/by.web/id=24197
http://www.huffingtonpost.com/2014/01/13/things-schools-should-teach_n_4576389.html

Waste Audit

Find out how well a community is recycling

Approximate time to complete activity: ~ 1.5 hours

Big Idea

Find out how well your home/classroom is recycling by sorting through your waste!

Learning Objectives

1. To identify areas of where waste management reduction can be improved
2. To determine the types of waste and the amounts being generated
3. To determine effectiveness of waste management strategies

Key Words

Recycle, audit, landfill, waste, weight, volume

Materials

1. Gloves
2. Medical face masks
3. Two tarps
4. Garbage bags
5. A scale
6. Data tracking sheet & future planning sheet (provided in resources)
7. Calculator & pen

Preparation

Obtain permission to conduct the audit in the area you wish and work with your custodian to save or collect cafeteria and/or classroom garbage from previous day. Lay two different tarps out, label one “Recyclables” and the other “Trash.” Print a data tracking sheet & a future planning sheet.

Procedure

1. Lay out the health & safety rules for the students who will be participating in the waste audit: 1) Everyone must be wearing gloves. 2) No throwing/playing with the trash. 3) No eating food from the trash.
2. Discuss the importance of the waste audit and how to sort the materials properly, separating the recyclables and the garbage.
3. Before sorting, weigh all of the trash bags on the scale and record the numbers.

4. Now have the students empty the trash bags and sort everything into their respective piles: the recyclables tarp or the trash tarp.
5. Throw all recyclables into a bag, weigh, and record results.
6. Throw all trash into a bag, weigh, and record results.
7. After recording results, have a discussion with the students about their reactions (sights, smells, surprises) and record qualitative observations on the tracking sheet.
8. Have the students create a strategic plan using the Goals to produce less waste. Discuss the future goal for the group and what is required by all of them to achieve that goal. As a group, discuss the strengths, opportunities, weaknesses, and threats associated with achieving their goal.

Books & Resources

https://youtu.be/AYcgw1rANMw (Waste audit tutorial)
http://www.ever-greenrecycling.com/blog/how-to-conduct-a-waste-audit/
https://blog.trashbackwards.com/2012/11/05/10-simple-steps-to-conducting-a-classroom-waste-audit/
http://oregongreenschools.org/wp-content/uploads/2012/10/Whats-in-your-waste.pdf
http://schools.stopwaste.org/images/stories/Documents/2014How_to_Run_A_Waste_Audit.pdf (Materials & Procedure PDF)
http://schools.stopwaste.org/images/stories/Documents/2014Waste_Audit_Data_Worksheet.pdf (Waste Audit Data Sheet PDF)
http://schools.stopwaste.org/images/stories/Documents/2014WAP_Peer_Action_Planning_Worksheet.pdf (Goals Planning Worksheet PDF)

DIY Recycled Notebook

Make your own notebook out of trash!

Approximate time to complete activity: ~ 1 hour

Big Idea

Instead of throwing away things you no longer need, put them to use by creating your own notebook.

Learning Objectives

1. To identify materials students are throwing away that could be reused
2. To discover new ways to reuse old items in the house
3. To learn the importance of reusing and reducing

Key Words

Reuse, repurpose, reclaim, measure, landfill, recycle, pollution

Materials

1. Cardboard from old boxes
2. Paint & paint brushes
3. Other decorative supplies as desired and available (e.g. stickers, stencils, magazines, glue for collaging)
4. Binder rings
5. Old paper
6. Hole puncher
7. Ruler
8. Pens/pencils

Preparation

Collect various cardboard that would normally be recycled.. Pasta boxes, cereal boxes, snack boxes, shipping boxes. Collect old notebooks or half-used sheets to reuse in a DIY recycled notebook.

Procedure

1. Cut out the covers and backs out of the old boxes.
2. Measure the distance between the holes in the paper to determine where the cover and the backing need to be hole punched. Mark each spot onto the cardboard with a pen or pencil.
3. Hole punch each spot that is marked in both the cover and the back.
4. Have the students decorate the notebook cover and backing using markers, paint, sticker, and stamps. They can decorate either the inside or outside of the box.
5. Loop the rings through the cover, papers, and backing.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Do you use cardboard boxes (cereal boxes or pasta boxes) in your home? Do you throw them away after you are done?	Answers vary
2. Instead of disposing of old boxes, what are different ways we can reuse them like the way we reused them today?	Notebooks, cards, organizers, bags, boxes, wallet, postcards, pencil case, bookmarks, picture frame, puzzle, etc. You can print out the following page or show on a projector to provide visuals for each example: (https://www.buzzfeed.com/pippa/cereal-box-diys-5ocb?utm_term=.mrbwx81g0d#.maMGd50Bx7)
3. If you want to dispose of a box after you are done with it, does it go into the trash bin or into the recycling bin and why is this important?	Recycling bin! Recycling is very important because waste has a huge negative impact on the natural environment. Harmful chemicals and greenhouse gases are released from landfill sites. Recycling helps to reduce the pollution caused by waste.

Books & Resources

https://youtu.be/aBj1vE-IhYw (Video tutorial)
http://simplehomestuff.blogspot.com/2011/04/re-purposed-cereal-boxes.html?showComment=1303508672044#c2046572190458202849
http://papiervalise.typepad.com/scissor_variations/2009/05/refillable-fabric-covered-notebooks.html

Poster Competition

Create your own recycling poster

Approximate time to complete activity: ~ 1 hour

Big Idea

Allow students the opportunity to express what recycling means to them and why it's important for their community.

Learning Objectives

1. To learn the purpose of recycling
2. To learn what can and cannot be recycled
3. To create and design a recycling poster

Key Words

Recycle, categories, paper mill, paper, plastic, glass, aluminum

Materials

1. Blank sheets of paper
2. Markers, crayons, colored pencils
3. Tape
4. Recyclables: plastic bottle, aluminum can, newspaper, cereal box, yogurt container, glass bottle
5. Pieces of trash: plastic bag, bottle cap, clamshell, styrofoam
6. Trash can and recycle bin

Procedure

1. Before beginning the poster design, first start off the class by introducing the students to the concept of recycling. Perhaps ask if any of the students know the definition of "recycle."
2. Introduce the definition (Recycle: convert (waste) into reusable material). Consider showing a video on recycling provided in the resources below, describing the lifecycle of items at the recycling center.
3. Show each trash piece individually and ask if each item can be recycled, then proceed to throw each item into the trash.
4. Show each recyclable item individually and ask if each item can be recycled, then proceed to throw each item into the recycle bin.
5. Hand each student a sheet of paper and announce that there will be a Recycle Poster Competition.
6. Have each student create their own poster using art supplies that have been provided.
7. After each student has completed a poster, tape each poster onto the wall and have community members vote for their favorite poster.
8. Hang the winning poster above the recycle bin to remind the students what to recycle!

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Why is it important to recycle?	It decreases the amount of waste on the planet. Producing recycled paper involves between 28 - 70% less energy consumption than producing new paper.
2. Did you learn about any new recyclables today?	Answers Vary.
3. Do you recycle at home? If not, will you tell your family about what you learned today?	Answers Vary.

Books & Resources

http://www.dictionary.com/browse/recycle

http://thekidshouldseethis.com/post/84528738617 (How trash is recycled: Life cycle of recycled materials)

http://www.recommunity.com/wp-content/themes/recommunity/pdf/ReLessonPlan_1-5.pdf (Recycling lesson plan)

Recycle BINGO

Learn about recyclables while playing BINGO!

Approximate time to complete activity: ~ 1 hour

Big Idea

What better way to remember recyclables than to play BINGO?

Learning Objectives

1. To learn which items are recyclable
2. To determine 3 ways to make recycling a fun and easy process
3. To predict the decomposition rates of different recyclable materials

Key Words

Recycle, blue bin, reduce, decomposition, waste, landfill

https://img.yumpu.com

Materials

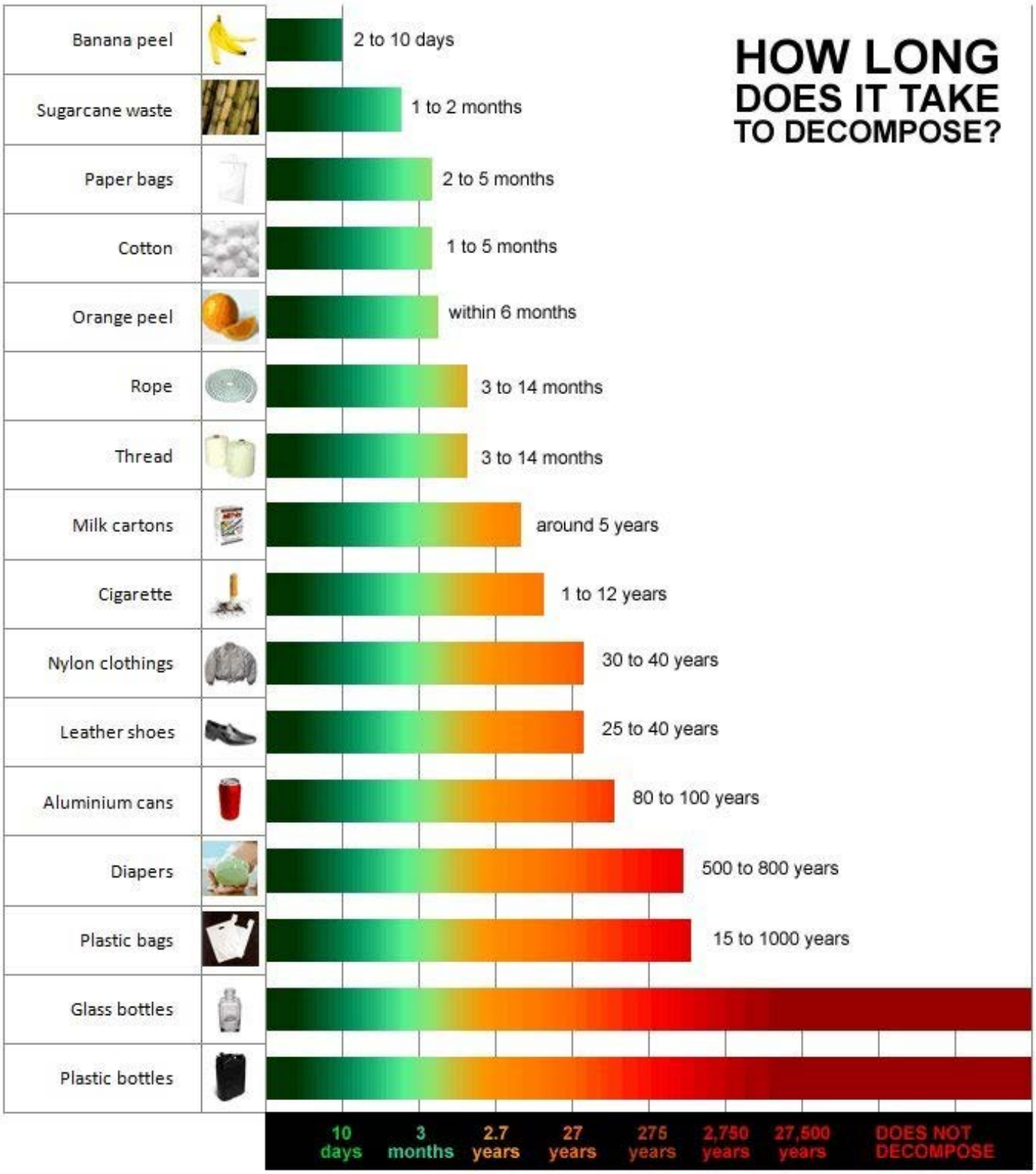
1. Printed BINGO cards
2. Printed BINGO recycle images
3. Scissors
4. Glue
5. Beans/coins/bottle caps
6. Cardboard or paper

Preparation

Print out enough BINGO images and blank cards for every student.

Procedure

1. Give each student a blank BINGO card and a sheet of images of recyclable materials(which are both provided as links in the “Resources” section below).
2. Have the students cut out all of the images and glue them onto their BINGO card to create their own unique BINGO card.
3. Use beans, coins, or bottle caps as place holders
4. Keep a sheet of the BINGO recycle images so you can call out images as you wish
5. BINGO on!



Source: http://socyberty.com/issues/strange-trash-facts/

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Why is it important to recycle?	Waste has a huge negative impact on the natural environment. Harmful chemicals and greenhouse gases are released from landfill sites. Recycling helps to reduce the pollution caused by waste.
2. What are some things you can do to make recycling fun and easy?	Fun: Play Recycle-ball (shoot materials into the bin). Easy: Place a recycle bin next to your trash can. Keep a list of recyclables on or next to the recycle bin.
3. What are some things you use everyday that are recyclable?	Possible suggestions if class is silent: juicebox drinks, foil, plastic soda/water bottles, aluminum soda cans, paper, old homework, etc.

Books & Resources

http://tj-prod-media.s3.amazonaws.com/2013/03/Screen-Shot-2013-03-21-at-11.57.34-PM.png (Blank BINGO Card)
https://img.yumpu.com/38630987/1/358x459/recycle-bingo-cards.jpg?quality=80
(Images of recycling for BINGO card)

Shrinky Dink:

Building your own recycle bin out of trash for your classroom

Approximate time to complete activity: ~ 1 hour

Big Idea

Clam shells can be inconvenient to recycle. Consider turning them into jewelry or art!

Learning Objectives

1. To describe why plastic clamshells cannot be recycled at home
2. To design your own shrinky dink charm
3. To explain the importance of reuse

Key Words

Clamshell, polystyrene, plastic, recycle, reuse

Materials

1. Clamshells- only #6 plastic (very important to prevent nasty fumes!)
2. Oven
3. Permanent markers
4. Hole Puncher
5. Scissors
6. Templates/traceable images (optional)
7. String (for jewelry), pin backings (for pins), keyholes and strings (for keychains)

Preparation

You may want to cut the clamshells into half to save time with the students.

Procedure

1. Cut out the sides of the clamshell so that you are left with the flat piece on the top or bottom of the container. Don't cut out a smaller space than necessary because the plastic will shrink in the oven while it is baking.
2. Punch a hole near the top center of the plastic piece.
3. Measure the shrinky dink in cm.
3. Have students draw an image of their choice onto the plastic piece. If they cannot think of something to draw on the spot, provide images students can trace onto their plastic piece.
4. Place all the plastic drawings onto a baking sheet with wax and baking on 350 degrees for a total of 30 seconds.
5. The images should shrink to about 1/3 of the original size. The shrinky dinks will be curled but that is normal!
6. Remove from the oven and allow to completely cool.
7. Measure the shrinky dink in cm again.

Symbol	Type of Plastic (by recycle code)	The Good	The Bad	Example Products
1 PETE	**PET** *Polyester*	Excellent chemical, heat and outdoor durability Stong	Stiff; non-conformable High cost	Beverage and sald dressing bottles; peanut butter containers
2 HDPE	**HDPE** *Treated High Density Polyethylene*	Low cost	Oils can migrate through the plastic causing bubbles in the labels	Milk jugs; juice, bleach and shampoo bottles; butter and yogurt containers
3 V	**Vinyl** *Rigid vinyl / PVC*	Conformable and squeezable Excellent UV and chemical resistance	Very high cost Bad regulatory reputation	Cleaning and shampoo bottles; house siding; sprinkler pipe
4 LDPE	**LDPE** *Treated Low Density Polyethylene*	Conformable and squeezable Decent chemical resistance	Limited UV resistance	Squeeze bottles; bread and dry cleaning bags; carpet
5 PP	**Polypropylene**	Decent chemical resistance and clarity Good conformability in some cases	Not great for UV exposure Moderate heat resistance	Water, syrup and ketchup bottles; some yogurt containers, straws
6 PS	**Polystyrene**	Stiffer than polypropylene	Poor chemical resistance and no squeezability Scratches easily	Disposible plates and cups; egg cartons; take-out cartons
7 OTHER	**Other** *Miscellaneous compounds not included above*	Cheap	Regulatory concerns stemming from multiple sources	Electronics cases; DVDs; sunglasses

Source: Spinnaker Coating

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Measure your shrinky dink before & after. How much did it shrink? Why do you think it shrank?	Plastic #6 is polystyrene, By nature, the polymer chains within the polystyrene are bunched up and randomly clumped together, but the heating, rolling and cooling process forces them to straighten out and get into a more orderly configuration. All the polymers want to do is bounce back into their more disorderly arrangement and they are able to do this when the polystyrene is heated again Read more: http://www.smithsonianmag.com/science-nature/the-science-of-shrinky-dinks-36715644/#3TYRWiLkx4Y4VLg7.99
2. Why can't clamshells be recycled at your home?	They must be heated at a different temperature and like the other type of plastics, they must be recycled separately. Read more: http://vangelinc.com/recycling/how-to-recycle-thermoform-batteries-cell-phones-and-fluorescent-light-bulbs

Books & Resources

https://www.youtube.com/watch?v=Rm6RN8cz7Sk (Youtube tutorial of shrinky dink pins)

https://youtu.be/i6rTmUtL2iM (Youtube tutorial shrinky dink jewelry)

http://thecheapluxury.com/2013/03/diy-shrinky-dinks/ (Blog post on DIY shrinky dinks)

http://www.chymist.com/Shrinky%20dinks.pdf (Shrinky Dink Project)

Box Guitar

Reuse old boxes to create your own music

Approximate time to complete activity: ~ 1 hour

Big Idea

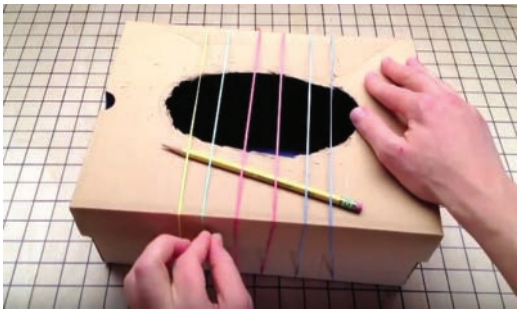
Reuse a box before recycling it to get the most out of its life.

Learning Objectives

1. To create a guitar out of an old box
2. To learn about the recycling process
3. To define what it means to reuse/reclaim

Key Words

Reuse, reclaim, recycling center, cardboard



kixcereal.com

youtube.com/kidspot

Materials

1. A box (tissue box, cereal box, pasta box, crackers box, etc.)
2. Large rubber bands
3. Scissors
4. Pen/pencil
5. Pencil/straw
6. Paint
7. Paint brushes
8. Markers
9. Stickers
10. Tape & glue
11. Paper towel roll

Procedure

1. To fully decorate the box, open up box by undoing the glue, and tape it back up inside out (so that it is completely brown).
2. Trace a circle on the front of the box and cut out with scissors.
3. Cut a sound hole on the top of the box for the neck of the guitar. Measure the paper towel roll by tracing around it. Cut out a hole on the top of the box.
4. Insert paper towel roll into the circle and tape onto the box.
5. Tie rubber bands around the entire box, as if they were guitar strings (3-6 “strings”).
6. Insert a pencil or a straw near the bottom of the strings to allow room for the strings to vibrate, what is known as a bridge.
7. Decorate the guitar using paint, markers, stickers, and anything else!

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. How can you make the notes higher or lower?	Tighten or loosen the rubber bands, move the pencil.
2. What other instruments can you make at home?	Plastic straw flute (https://www.youtube.com/watch?v=sglOT1J80Ss), tin can or bucket drums, and anything else that makes a sound you enjoy!

Books & Resources

https://www.youtube.com/watch?v=4m5oWZixca0 (Youtube tutorial)
http://www.kixcereal.com/kix-cereal-5-fun-cinco-de-mayo-inspired-music-party-crafts-for-kids/ (Instructions)

Paper Wallet

Use an old paper bag to create your own wallet

Approximate time to complete activity: ~ 1 hour

Big Idea

Get a second use out of a paper grocery bag by making a wallet.

Learning Objectives

1. To create a wallet out of a paper bag
2. To learn about reclaiming and reusing
3. To define what a landfill is and how you can send less waste there

Key Words

Reuse, reclaim, recycling center, paper, landfill

Materials

1. A paper bag
2. Scissors/Craft knife
3. Double sided tape or strong glue

Procedure

1. Rip open the bottom of the bag and flatten the bag out.
2. Cut the bag into four pieces: the front, the back, and the sides.
3. Tear off the handles.
4. To figure out the height of the wallet, lay out the front piece, lay the dollar on top (leaving ¼ inch room on the bottom). After that, fold the bottom of the paper up. Then fold the top of the paper down over. Cut off the excess paper.
5. Fold the left and right side in, ¼ inch.
6. Cut slits on the folded pieces, at each crease.
7. Use double sided tape or strong glue, and apply to the sides of the middle section. Fold up the bottom section onto the tape or glue.
8. Apply tape or glue to the sides again and fold the top piece down onto the tape or glue.
9. Fold the wallet into half.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Which bin do you throw paper bags in, recycle or trash?	Recycle
2. Can you explain to me what a landfill is?	A place to dispose of refuse and other waste material by burying it and covering it over with soil, especially as a method of filling in or extending usable land.
3. Have you ever reused or reclaimed paper bags? What other types of things can you create out of paper bags?	Airplanes, book covers, origami
4. What are things you can do to send less waste to the landfill?	Reuse things you would throw away!

Books & Resources

https://youtu.be/t9lufwkSJHE (Youtube tutorial)
http://en.rocketnews24.com/2014/09/08/lifehack-transform-a-starbucks-paper-bag-into-a-fully-functional-wallet/ (Picture tutorial)
http://1bagatatime.com/learn/paper-bags/ (Facts about paper bags)

Plottoman

Use trash to create a comfy ottoman for the community room

Approximate time to complete activity: ~2-3 hours

Big Idea

Use plastic bottles to an ottoman and foster a sense of community in a shared space.

Learning Objectives

1. To learn the importance of community through collaborating with peers
2. To define landfill and explain the importance of reducing our waste
3. To design and contribute images to the

Key Words

Reuse, reclaim, landfill, waste, collaborate, community

Materials

1. 32 2-liter Plastic bottles
2. 6 Pieces of cardboard (40 x 40 cm)
3. 6 pieces of sponge or foam (40 x 40cm)
4. Scissors
5. Measuring Tape
6. Tape
7. Felt
8. Hot glue gun & glue sticks
9. X-acto knife or craft knife

Preparation

Cut large slits into half of the bottles where the top will need to be cut off. This will make it easier for your students to cut with scissors. Cut out the pieces of thick cardboard and 6 pieces sponge/foam 40 x 40 cm.

Procedure

Refer to the pictures on the next page for each step

1. Cut off the top part of 16 bottles. Place the top inside the bottle with the cap placed on the bottom. Slide 16 whole bottles into the 16 bottles that are cut open. Apply tape to the connected pairs.
2. Group together bottles into 4's and tape them together.
3. Group the 4's together and tape them together (now 8's).
4. Group the two 8's together for a final taping.
5. Tape together all 6 sides of the cardboard.
6. Hot glue the foam or sponge onto the cardboard.
7. Hot glue felt onto the ottoman so that it is one color.
8. Have students create their own images out of different color felt and help them hot glue it onto the ottoman.


2 litros
zero
zero

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Why was it so significant to create furniture out of plastic bottles?	To prevent them from ending up in landfills.
2. Do you know what a landfill is?	A place to dispose of refuse and other waste material by burying it and covering it over with soil, especially as a method of filling in or extending usable land.
3. Do you reuse anything at home to prevent it from ending up landfills?	Answers Vary.
4. Did you learn anything new about teamwork or collaboration? Do you think it helped create a sense of community in the room?	Answers Vary.

Books & Resources

https://youtu.be/49V_CDRvj9A (Youtube tutorial)

https://youtu.be/uqqhJcvLQXE (Another Youtube tutorial)
http://www.icreativeideas.com/how-to-make-a-nice-diy-ottoman-from-plastic-bottles/
(Instructions with pictures- step by step)

Reuse

WWW.TRASHFORPEACE.ORG

Bottle Cap Mural:
Creating a mural out of bottle caps

Approximate time to complete activity: ~ 5 hours

Big Idea
Introduce children to ways of reducing their waste even if they can't recycle. One way is to create art!

Learning Objectives
1. To build a bottle cap mural out of trash
2. To learn about the importance of sustainable development
3. To learn why plastic bottle caps cannot be recycled and ways we can reuse them

Key Words
Reuse, repurpose, reclaim, contaminate, recycling center

Materials
1. A piece of plywood, any size you prefer
2. A variety of bottle caps
3. Pencils, paper, pens, paint, paint brushes
4. A power drill
5. Screws (long enough to go through the cap and into the wood)

Preparation
Sort out the bottle caps by color prior to screwing on.

Procedure
1. Pass out pencils and paper and have the students brainstorm together about what should be on the mural.
2. After the students agree on a design, have them draw the design onto the plywood with pens and then paint it.
3. The students will then fill in all of the areas with bottle caps, according to what color the mural is painted.
4. Under supervision, have students drill the bottle caps into the plywood with a power drill.

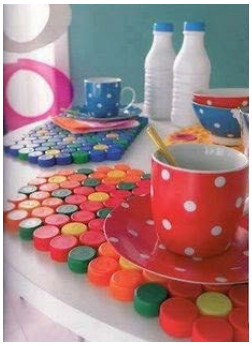
Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
Are bottle caps recyclable?	Plastic caps are typically made from plastic #5 while the bottles they accompany are made from #2. These two types of plastic melt at different temperatures during the recycling process and therefore requiring special processing (Earth911.com).
What can you do to help prevent plastic bottle caps ending up in landfills?	Answers vary.

(http://how-to-recycle.blogspot.com)
Bottle cap flooring

(http://fvue.nl)
Door beads



(http://www.vitamin-ha.com)
Placemats

(http://www.daniellesplace.com)
Checker board

(http://www.whateverdeedeewants.com/)
Foam stamps

(https://recycluzz.com)
Plastic flowers

Books & Resources

https://youtu.be/YhjKkF6cAa0
http://www.mericherry.com/2014/02/07/school-wide-bottle-cap-mural-project/
http://www.juliedkohl.com/bottle-cap-murals/
http://www.artwithmre.com/search/label/Bottle%20Caps

Wind Chimes

Design your own wind chime with reused materials

Approximate time to complete activity: ~ 1 hour

Big Idea

Children will develop creative thinking and motor skills when creating a wind chime out of trash.

Learning Objectives

1. To determine how to create an individualized wind chime by hanging cans at different lengths
2. To learn the life cycle of an aluminum can
3. To learn the importance of recycling and reusing aluminum cans

Key Words

Reuse, repurpose, design, measure, recycle, energy, aluminum

https://cagefreemom.wordpress.com

Materials

1. 5-6 tin cans, any shape/size
2. Acrylic paint
3. Paintbrushes
4. Hammer
5. Nails
6. Twine/ old computer wires
7. Scissors
8. 10” embroidery hoop
9. Hot glue gun

Preparation

Be sure to rinse the tin cans and remove the labels.

Procedure

1. Have the students paint the cans in any design that they choose.
2. Use the hammer and a nail to create a hole in the bottom of the tin cans. Thread through twine/wire through each can separately. Be sure to tie a knot underneath each can.
3. Tie the cans to the embroidery hoop, allowing the cans to hang at different lengths. Apply glue to each knot to keep it in place.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. How many aluminum cans are used by the average American each day?	One beverage can per person per day
2. How many cans do we recycle that we use?	Just over 49%
3. How many days does it take to recycle one can and create a new can?	60 days
4. How much energy is saved by recycling one aluminum can?	It saves enough energy to run a television for 3 hours.

A Day in the Life of a Recycled Can

1. Customer takes can to a recycling center or puts it into a recycling bin.
2. The can is transported to a processing facility.
3. A giant magnet lifts out cans that are made of metals such steel. Since aluminum cans aren't magnetic, they drop down to a conveyor belt and are gathered.
4. The aluminum is shredded, washed and turned into aluminum chips.
5. The chips are melted in a large furnace.
6. The melted aluminum is poured into molds called "ingots."
7. The ingots are taken to a factory where they're melted into rolls of thin, flat sheets.
8. From the sheets, manufacturers make new products, including new beverage cans, pie pans, license plate frames, and aluminum foil.
9. Beverage companies fill the cans and deliver them to grocery stores for customers to purchase.
10. Customers take used cans to a recycling center and the process starts all over again. (http://www.wm.com/thinkgreen/what-can-i-recycle.jsp)

Books & Resources

http://www.allyou.com/budget-home/crafts/tin-can-wind-chime
http://handsonaswegrow.com/outdoor-music-diy-windchimes/?w3tc_note=pgcache_purge_post
http://www.gardenguides.com/68323-make-tin-can-wind-chime.html

DIY Stamp

Creating a stamp of your choice out of a bottle cap

Approximate time to complete activity: ~ 30 minutes

Big Idea

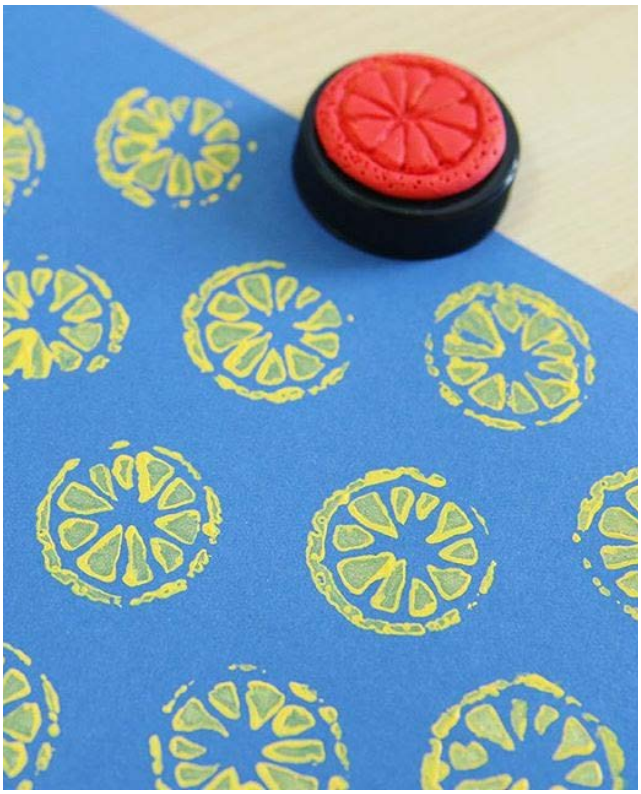
Although you cannot recycle bottle caps, you can still reuse them for a variety of things!

Learning Objectives

1. To learn different ways you can reuse a bottle cap
2. To discover where bottle caps end up if they are thrown away

Key Words

Reuse, reclaim, landfill, pollution



(http://sealemon.co)

Materials

1. Bottle caps (the larger the better)
2. Foam paper
3. Paint/ink pad
4. Glue

Preparation

Wash all bottle caps before you begin the project.

Procedure

1. Cut out the foam paper of the shape you want your stamp to be.
2. Glue on the foam paper to the bottle cap.
3. Press your stamp down onto paint or an ink pad.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. If plastic bottle caps do not get recycled, where do they end up?	One beverage can per person per day
2. Why are plastic bottle caps difficult to recycle?	They are too small and often times fall through the cracks in recycling processes.
3. What are different ways that you can reuse bottle caps to prevent them from polluting our earth?	Make art!

Books & Resources

https://vanessasvalues.blogspot.ca/2011/11/create-with-kids-make-your-own-bottle.html
https://www.youtube.com/watch?v=dkucwFzTAUM (YouTube Tutorial)
https://www.preserveproducts.com/recycle/programs/gimme-5-caps-recycling-4569

No Sew T-Shirt Bag

Turn that old unworn t-shirt into a shopping bag

Approximate time to complete activity: ~1 hour

Big Idea

Children can think of ways to use unused items in their house to reduce their waste.

Learning Objectives

1. To discover how to create a bag out of a shirt
2. To learn how to properly mark measurements required to make the proper cuts
3. To learn why reusable bags are better for the environment than plastic shopping bags

Key Words

Reuse, reduce, decompose, pollution, sustainable

Materials

1. Old t-shirts
2. Markers/Pens
3. Rulers
4. Scissors

Procedure

1. Lay a t-shirt flat out on your work space inside-out.
2. Trace a lines along both of the sleeve lines. Cut off both of the sleeves.
3. Trace a half circle around the neck area. Cut along the line.
4. Draw slits on the bottom of the t-shirt, 4 inches high and one inch apart (as pictured off to the right).
5. Cut the slits on both the front and the back of the shirt so that the slits match up.
6. Now tie the slits that lay on top of each other.
7. Once all the slits are in knots, tie another knot with its neighbor (the slit to the right of it). Double knot each knot for added security.
8. Turn the shirt right-side out once all the knots have been double knotted.
9. Wear to the grocery store to reduce your Carbon footprint!

Assessment

Assessing the student's knowledge with Q & A

(https://www.reusethisbag.com/25-reasons-to-go-reusable.php)

Questions	Answers
1. What does it mean to "decompose?"	To break down into smaller parts or elements.
2. How long do you think it takes a plastic bag to decompose?	A plastic bag can take from 15 to 1,000 years to break down, depending on environment.
3. On average, how many bags are used in the United States in one year? Which means, how many per person?	The United States uses about 100 billion plastic bags per year, with the average person using between 350 and 500.
4. How many plastic bags are recycled in the United States?	About 2% of plastic bags are recycled.

Books & Resources

https://www.youtube.com/watch?v=_O33Wq_uz6Y (video tutorial)
http://www.mommypotamus.com/no-sew-t-shirt-tote-bag-tutorial/
https://www.reusethisbag.com/25-reasons-to-go-reusable.php (Plastic bag fact sheet)

DIY Kaleidoscope:

Reuse a toilet paper roll to create wonders for the eye!

Approximate time to complete activity: ~ 1- 1.5 hours

Big Idea

Learn how ordinary household objects often thrown out can be reused for fun and educational purposes.

Learning Objectives

1. To discover who Sir David Brewster is and his theory of light
2. To create symmetrical designs
3. To discuss reflection and light

Key Words

Reuse, reclaim, light, reflection, angle, reflection, colors, spectrum

Materials

1. Pringles container, paper towel roll, or toilet paper roll
2. A clamshell container
3. Hot glue gun & glue
4. Mirror paper or foil & stock paper
5. Colorful beads
6. A permanent marker
7. Tape
8. Markers and/or paint
9. A plastic straw

Preparation

Cut the clamshells into flat sheets to make it easier for students to cut out circles. Consider pre-cutting the sheets of mirror paper if the students are too young to measure and cut themselves.

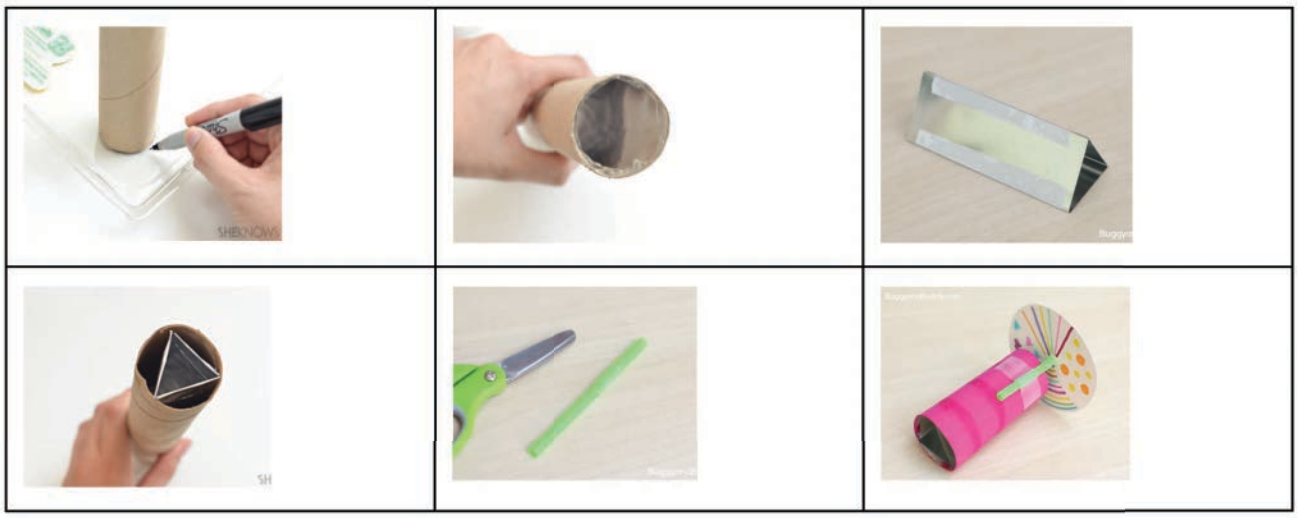
Procedure

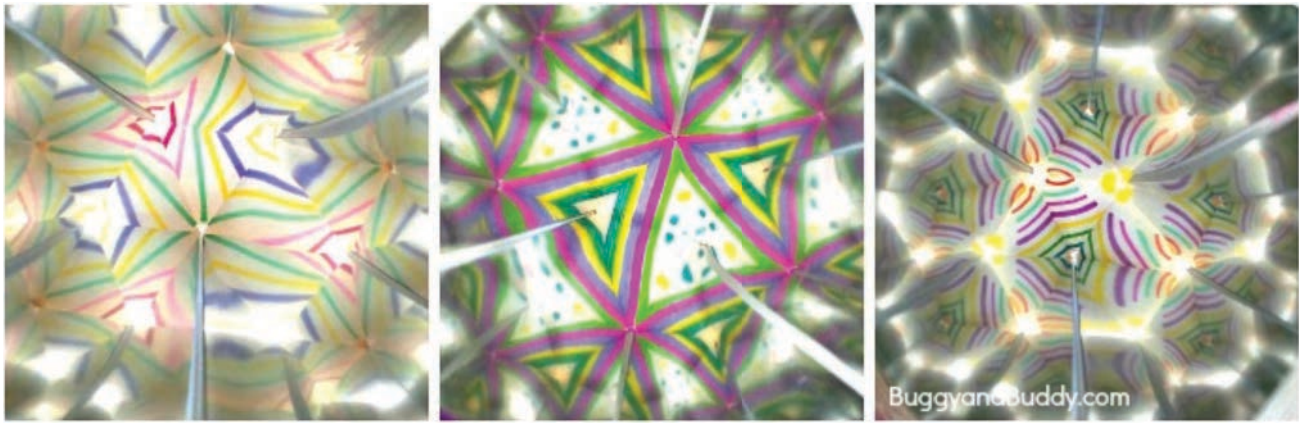
1. Decorate the toilet paper roll with markers, paint, and/or stickers.
2. Design your own circle using this circle template and use each circle to create 4-6 different designs.
(https://drive.google.com/file/d/0B-cVjZBMBNNXR2pYQ0JzSkc2dGc/view)

Kaleidoscope Project

1. Use a permanent marker to trace the toilet paper roll on a sheet of clamshell plastic. Trace 3 circles onto the plastic.
2. Cut out all 3 circles.

3. Use a hot glue gun to glue one of the plastic circles onto one end of the toilet paper roll. Be careful not to burn yourself.
4. Cut out 3 strips of mirror paper or foil 3 ½ inch x 1 ¼ inch.
5. Tape all of the strips together so that it forms a triangle.
6. Slide that triangle into the toilet paper roll.
7. Cut one of the clamshell plastic circles slightly smaller, so that it fits snugly inside of the toilet paper roll and place that on top of the triangle.
8. Place beads on top of the plastic circle.
9. Use the hot glue gun to glue the last plastic circle to seal the kaleidoscope shut.
10. Poke a hole at the center your circle template that you designed earlier.
11. Cut off the bendy end of a straw.
12. Tape the straw to the toilet paper tube with the bendy part hanging off the edge.
13. Slide the designed paper circle onto the straw, so that it is able to turn easily.





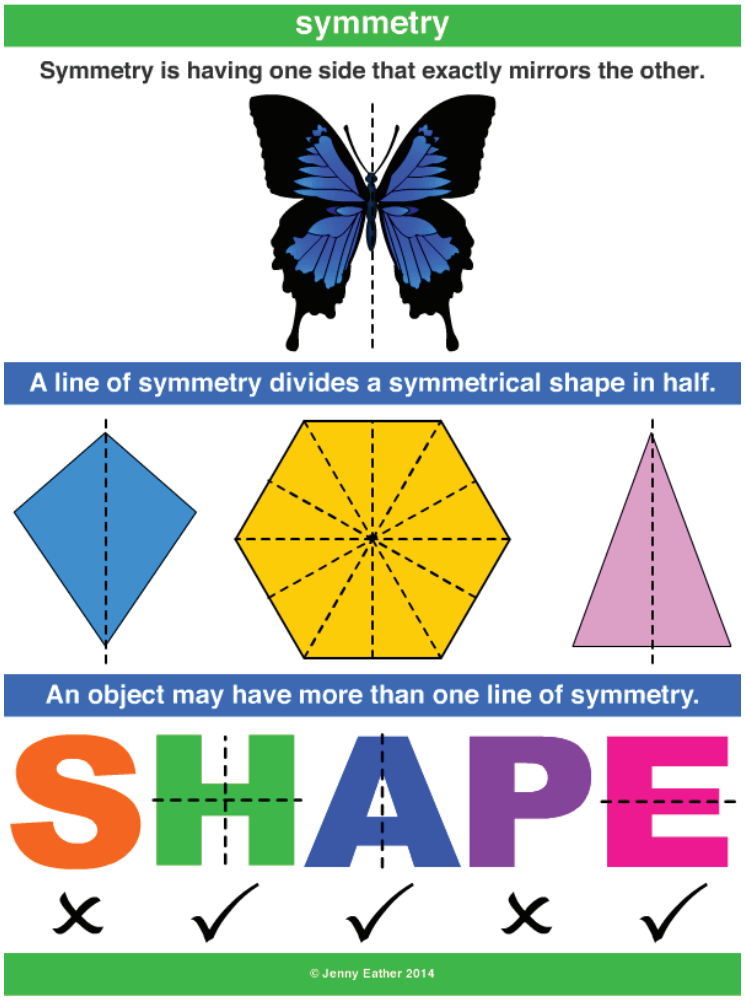
http://buggyandbuddy.com/

History

Kaleidoscopes were first invented in 1816 by a Scottish physicist, Sir David Brewster. He worked with optics and polarized light. We are going to look at one example of some of his research.

Kaleidoscopes are optical devices consisting of mirrors that reflect images of colored beads (or whatever is used in the tube) in a symmetrical geometric design through a viewer. The design is constantly changed by rotating the section of the tube that contains the loose beads. The name of the kaleidoscope comes from the Greek words, -kalos- meaning beautiful, -eidos- meaning form, and -skopein- meaning to view.

The kaleidoscope is sold as a toy but it produces patterns that can be studied. The three mirrors are arranged at 45 degree angles and illustrate the properties of combined mirrors, which reflect the images over and over again in each mirror.



Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Who created the kaleidoscope and when?	The kaleidoscope was created by Sir David Brewster in 1816
2. What types of images are reflected in the kaleidoscope? What does that mean?	Symmetrical images. Something is symmetrical when it is the same on both sides. A shape has symmetry if a central dividing line (a mirror line) can be drawn on it, to show that both sides of the shape are exactly the same.

Books & Resources

http://buggyandbuddy.com/science-for-kids-how-to-make-a-kaleidoscope/
http://www.beaconlearningcenter.com/Lessons/Lesson.asp?ID=923 (Lesson plan)
https://brewstersociety.com/kaleidoscope-university/sir-david-brewster/ (Brewster biography)
https://www.youtube.com/watch?v=_ax5iHsbUFk (Video tutorial begins @ 1:45)

Water bottle lava lamp

Before you recycle that bottle, watch it come to life!

Approximate time to complete activity: ~ 45 minutes

Big Idea

Reuse a plastic bottle to conduct a cool science experiment as an introduction to the Scientific Method.

Learning Objectives

1. To form a hypothesis
2. To make a scientific observation
3. To learn about recycling and reusing

Key Words

Oil, reaction, hypothesis, observation, recycle, reuse

Materials

1. Plastic bottles
2. Oil
3. Original Alka-Seltzer tabs
4. Food coloring
5. Glitter
6. A sheet of paper for each student
7. Pencils, markers, crayons
8. Flashlight (optional)
9. Funnel (optional)

Procedure

1. Hand each student a sheet of blank white paper to record scientific observations.
2. Fill each bottle with water. Have the students draw what they see and record this on their paper as “Observation #1.”
3. Fill the remainder of each bottle with oil. Have the students draw what they see and record this on their paper as “Observation #2.”

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Did the oil and water mix? Why/Why not?	The oil always floats to the top because it is less dense than water. Oil and water don't mix because water molecules are more attracted to each other than to oil molecules.
2. What observations did you make?	Answers vary
3. Do you reuse plastic bottles at home? What are some different ways that you reuse them?	Answers vary (examples of reuse: DIY flower pot, piggy bank, watering can, bird feeder)
4. If you can't find ways to reuse plastic bottles, do you recycle them at home?	Answers vary
5. Why is it important to recycle?	By recycling, you can also help conserve the additional 80% of energy that's typically used when making new plastic bottles, containers and other items instead of recycling.

Books & Resources

http://www.education.com/science-fair/article/make-your-own-lava-lamp/
https://www.stevespanglerscience.com/lab/experiments/bubbling-lava-lamp/
(short video tutorial)
http://scholarship.claremont.edu/cgi/viewcontent.cgi?article=1001&context=idaas_studentwork (Structure the class geared towards the grade(s) you teach)

DIY checkboard

Create a game out of an old piece of cardboard

Approximate time to complete activity: ~ 45 minutes

Big Idea

Reuse something before recycling it to create something else useful.

Learning Objectives

1. To learn how to properly measure
2. To design a checkerboard
3. To explain why it is more important to reuse rather than recycle items

Key Words

Reuse, recycle, trash, landfill, cardboard, design

Materials

1. Piece of cardboard (for board)
2. Painter's tape
3. Paint, paint brushes
4. Bottle caps

Procedure

1. Place tape on your cardboard box so that there are 8 squares across and 8 rows of squares.
2. Use an X-acto knife or similar blade to gently remove tape, to create a pattern of every other square having tape (notice the difference between photo #3 and photo #6).
3. Paint the white squares another color from your cardboard piece.
4. Remove the tape and let dry completely.
5. Use bottle caps as checkerboard pieces.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. If you did not reuse this cardboard today, which bin would you have thrown it in?	Recycle bin
2. Do you know where trash in the garbage ends up?	Landfill (You can also google search for the landfill that is closest to your town and show the students on a map). Show video if you have time: https://youtu.be/s-ps_0UFmfI
3. Do you enjoy reusing things instead of throwing them away or recycling them? What are some other things you can reuse to make games and toys?	Plastic bottles, toilet paper rolls, foil, paper, cereal boxes, etc.

Books & Resources

http://greenplanet4kids.com/blog-entry/my-earth-day-project (Story for children about making a checkberboard for Earth Day)
http://www.metroparent.com/daily/family-fun/family-activities/make-checkerboard/ (DIY checkerboard blog post)

Egg Carton Wreath

Making decorations out of egg containers

Approximate time to complete activity: ~ 1 hour

Big Idea

Egg cartons can be reused to create wall art for your home or classroom.

Learning Objectives

1. To learn different ways you can reuse egg cartons
2. To define biodegrade
3. To create and design an egg carton wreath

Key Words

Reuse, reclaim, recycle, biodegrade, compost

Materials

1. Cardboard egg cartons
2. Paint & paint brushes
3. Large piece of cardboard
4. Glue
5. Scissors

Preparations

Cut out small cardboard rings for the wreaths. Also consider having traceable leaves for them to trace and cut for the wreath.

Procedure

1. Cut your egg carton into separate cups.
2. Design each cup into different types of flowers. Consider having examples available to inspire the students.
3. Paint each flower a different color or pattern.
4. While the flower egg cartons are drying, have students trace leaves and cut them out.
5. Glue the leaves onto the round cardboard cutout wreath.
6. Glue on flowers onto the cardboard.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. How many times can the cardboard from an egg carton be recycled?	According to the Technical Association of the Pulp and Paper Industry, wood fibers can only be recycled five to seven times before they become too short and brittle to be made into new paper products.
2. Do you know that the cartons are biodegradable? Do you know what that means?	Biodegradable: (of a substance or object) capable of being decomposed by bacteria or other living organisms.
3. Do you recycle egg cartons at home?	~ Answers Vary

Books & Resources

https://en.wikipedia.org/wiki/Biodegradation
http://www.parents.com/fun/arts-crafts/kid/creative-egg-carton-crafts/
https://recyclenation.com/2012/03/sustainable-egg-cartons/

Magazine Picture Frame

Turn any magazine page into a unique design

Approximate time to complete activity: ~1 - 1.5 hours

Big Idea

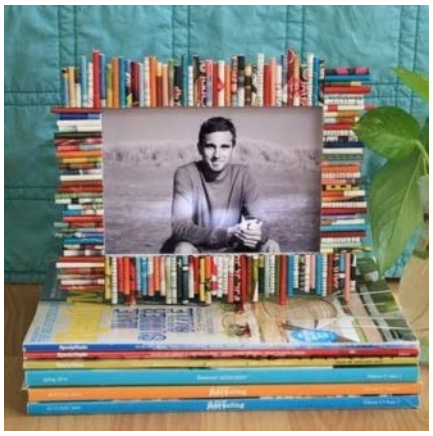
Repurpose old magazines that have been read 100 times into a unique picture frame.

Learning Objectives

1. To design an upcycled picture frame
2. To explain the negative side effects of methane
3. To identify the issue that arises when magazines are sent to the landfill

Key Words

Magazine, cardboard, reuse, repurpose, recycle, landfill, methane



Materials

1. Cardboard
2. Magazines
3. Scissors
4. Craft glue/mod podge
5. Skewers

Preparations

Prepare frames out of old cardboard boxes (cereal boxes, cracker boxes, pasta boxes, etc.) by cutting them into the shape of a 5x7 picture frame. Make the frame width as large as you'd like it but consider 1-1.5 inch borders.

6. Now tie the slits that lay on top of each other.

Procedure

1. Tear out colored pages from the magazine.
2. Cut each page into strips the same width of your frame border (1-1.5 inches) and 2 inches in height.
3. Use a skewer to wrap the magazine around tightly to create a roll. Carefully roll, trying to roll as straight as possible to prevent unrolling.
4. The frame should require approximately 150-250 rolls, depending on how tightly the magazine slips were rolled.
5. Apply craft glue/mod podge onto the toll and stick onto the frame.
6. Apply mod podge or varnish over the final product to make more durable.

Assessment

Assessing the student's knowledge with Q & A

(http://pbskids.org/loopscoops/about-magazines.html)

Questions	Answers
1. How many magazines are thrown into the trash every year in the US?	Seven magazines a month times 12 months equals 84 magazines, times 115 million families, times... okay, so EVERY YEAR people in this country throw away two and a half million TONS of magazines.
2. What happens to magazines if they are thrown away?	When paper starts to break down in a landfill it creates methane. Methane really is the gas that makes up cow farts (and people farts!), and although it occurs naturally, too much of it in the atmosphere can prevent sunlight from escaping the earth's atmosphere and therefore contribute to global warming. Paper in landfills also contributes to the creation of leachate, a toxic liquid which occurs when rainwater filters through the materials in the landfill and picks up traces of theirs poisonous chemicals. This includes the inks used in printing on paper, especially color inks from magazines. Leachate is harmful if it drains into the groundwater and people's water supply.
3. Do you throw magazines away? Will you start creating art with them instead?	~ Answers Vary

Books & Resources

https://youtu.be/9-unbEipwml (Youtube Video Tutorial)
http://pbskids.org/loopscoops/about-magazines.html

Mosaic CD Art

Turn your old CDs into an artistic vase

Approximate time to complete activity: ~ 30- 45 minutes

Big Idea

Think of creative ways to reuse items that are no longer needed in your home, such as CDs.

Learning Objectives

1. To discover how to repurpose an old plastic container and CD
2. To design a functional vase
3. To learn why it is important to reuse and recycle

Key Words

Reuse, repurpose, recycle, environment

Materials

1. CDs
2. Plastic containers
3. Scissors
4. Tacky glue/quick dry adhesive/hot glue (and gun)
5. Paint
6. Paintbrushes
7. Newspaper/tarp
8. Pot & Stove OR bowl & microwave
9. Material/string (optional)

Preparation

Cut off the top half of plastic bottles. Prepare the newspaper/tarp for painting.

Procedure

1. Paint the half bottle any color you want, with a thin layer of paint.
2. As the students are painting their plastic containers, place a bowl filled halfway into the microwave for ten minutes. Place the CDs into the bowl of hot water for 10 minutes.
3. Cut out and glue on the pieces any way you would like! Cover the entire vase, glue on the CD scraps in the shape of something, smell a word, etc.
4. Consider gluing material around as well or tying a bow around the container.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Can you throw CDs into the recycle bin? Why or why not?	No! Because compact discs are made with layers of different materials and cannot necessarily be recycled with other plastics. This can ruin the batch of plastic that is being recycled and ruin the machines.
2. If you have the choice of purchasing a disc copy of something or downloading it on your computer, which one would you choose? Which type is better for the environment?	There are many reasons for this decrease, including the manufacturing of CDs and their cases, and the transportation of the software packages to customers. According to the United States Environmental Protection Agency's Greenhouse Gas Equivalencies Calculator, this amount of emissions is roughly equal to: 454 933 gallons of gasoline consumed Emissions from 845 passenger vehicles The electricity use of 558 homes for one year Carbon sequestered annually by 3326 acres of U.S. forests
3. On average, how many compact discs get thrown into the trash per year?	5.5 million CDs are thrown away annually.

Books & Resources

http://www.slate.com/articles/health_and_science/the_green_lantern/2009/10/world_music.html (learn about the environmental impact of different ways of listening to music)

Energy and Water

WWW.TRASHFORPEACE.ORG

Plastic Bottle Waterfall

Reuse bottles to create your own fountain

Approximate time to complete activity: 1-3 hours (depending on bin decoration)

Big Idea

Reuse water bottles to create a waterfall for observing the movement of water and playing in the summer.

Learning Objectives

1. To learn the importance of reuse
2. To learn about the movement of water
3. To design a waterfall

Key Words

Reuse, design, flow, environment,

Materials

1. 5-6 plastic bottles & their bottle caps
2. A large piece of wood (at least 4x4)
3. A knife, X-acto knife, or scissors
4. 6-10 screws,
5. Drill or screwdrivers
6. Paint & paint brushes

Preparation

Rinse out all of the water bottles prior to the day of the activity. Depending on the age of the students, you may want to cut slits beforehand. Before you begin the design of the waterfall, have your students paint the water bottles during the previous prior class.

Procedure

1. To begin, create a hole in every bottle cap using your knife or X-acto.
2. Take your first bottle (#1) and cut the entire bottom off, so that there is a huge opening.
3. Attach bottle #1 to the wood upside down, using a screw and a drill or screwdriver.
4. Arrange your other bottles in whatever way you would like your fountain to run. Experiment with the movement of water: Which arrangement would create the fastest flow of water? The slowest? Longest route? Shortest route?
5. Make holes in bottles accordingly to where the water will run, from flowing out of the previous bottle.
6. After you have assembled all of the bottles, cut slits on the bottom of the last bottle so that the water sprinkles out of 8-12 holes.
7. Have fun!

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Where can you find natural waterfalls?	Anywhere flowing water (river, stream, etc.) reaches a cliff or ledge. There are several in the Columbia River Gorge. http://www.wweek.com/outdoors/2017/09/19/four-great-waterfall-hikes-that-havent-been-affected-by-the-fire/
2. What route does flowing water follow?	It follows gravity and takes the path of least resistance.
3. Why is it important to reuse plastic water bottles?	Getting the most use out of plastic means we need less of it. That means fewer resources used in production and less plastic polluting the oceans.

Books & Resources

http://theeverydaymomma.blogspot.com//2014/06/think-outside-toy-box-plastic-pop.html
http://tinkerlab.com/diy-water-wall/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed:tinkerlab/sZOjTinkerLab
https://www.cutoutandkeep.net/projects/water-wall
http://www.letthechildrenplay.net/2011/10/ideas-for-water-wall-at-preschool.html (A variety of ways to design your waterfall)

Eco-Friendly Detergent

Create your own detergent to save money

Approximate time to complete activity: ~ 1.5 hours

Big Idea

Learn how to live healthier by using a homemade eco-friendly detergent.

Learning Objectives

1. To make DIY laundry detergent
2. To learn why homemade detergent is better for the environment
3. To discover the economic benefit of homemade detergent

Key Words

Detergent, chemicals, reduce, energy, water, cost

http://cleaningouttheclutter.com/

Materials

1. Borax
2. Baking soda
3. Epsom salt
4. Pure castile soap
5. 20 drops essential oil of choice (optional)
6. Cheese grater or food processor and knife
7. Gloves

Procedure

1. Grate the bar of soap or cut it into smaller pieces and use a food processor to break it down.
2. Mix the grated soap with 1 cup of borax, 1 cup of epsom salt, and 1 cup of baking soda. Remember to use gloves when mixing.
3. Add essential oils and stir.
4. Store in airtight container or jar.
5. Use 1-2 tablespoons of detergent per load, depending on the size.

Tip: Add hydrogen peroxide if needed for stains. Distilled white vinegar can be used to brighten whites, remove odors, and soften fabrics.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Why should you make your own detergent?	To avoid using harmful chemicals found in store bought detergent, prevent Volatile Organic Compounds (VOCs) from being in your home, avoid using plastic containers, and to save money.
2. How many loads of laundry does the average family do per year? How much water is used?	The average family does about 400 loads per year, consuming around 13,500 gallons of water.
3. How can you reduce your environmental impact when doing laundry?	Ways to reduce impact: use cold water, only do full loads of laundry, hang-dry clothes when possible, wear your clothes more than once, use homemade detergent, and wash by hand.

Books & Resources

http://wellnessmama.com/27059/high-efficiency-laundry-detergent/
http://wellnessmama.com/3615/stain-treatment-reference/ (Treat your stains)
http://www.thymeandtimber.com/2012/03/29/simple-natural-laundry-care-tips/ (Laundry care tips)
http://www.nontoxicforhealth.com/homemade-laundry-detergent.html (3 reasons to try homemade detergent)
http://www.treehugger.com/htgg/how-to-go-green-laundry.html (11 ways to green your laundry)

Eco-Friendly Cleaner

Create an all-purpose cleaner to save money

Approximate time to complete activity: ~ 30 minutes

Big Idea

Teach students that cleaning your house with DIY cleaners is cheaper and healthier.

Learning Objectives

1. To make an eco-friendly all-purpose cleaner
2. To discover ways to save money by creating your own cleaning products
3. To compare and contrast store-bought all-purpose cleaners with DIY all-purpose cleaners

Key Words

Eco-friendly, toxic chemicals, alternative, cleaner, human health, environment

Materials

1. 1/4-1/2 cup of white vinegar
2. 2 tablespoons of baking soda
3. Several drops of tea tree or eucalyptus essential oil
4. Spray bottle
5. Enough water to fill the bottle

Procedure

1. Pour ¼- ½ cup of white vinegar into the spray bottle.
2. Add 2 tablespoons of baking soda along with the vinegar.
3. Put in a few drops of essential oils.
4. Fill the remaining bottle with water.
5. Shake the spray bottle well.
6. Spray and clean any surface with this eco-friendly all-purpose cleaner!

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Why are store-bought cleaners dangerous to use in your home?	They are filled with toxic chemicals and only 30% of them have been tested for exposure to human health and the environment.
2. Why is DIY all-purpose cleaner more healthy for your home?	An all-purpose cleaner that you make yourself, using household ingredients, is more healthy for your home because it is eco-friendly. The ingredients involved in the DIY cleaner do not contain harsh chemicals like the store-bought cleaners.
3. Why is it cheaper to use baking soda and vinegar?	Baking soda and vinegar are generally inexpensive at supermarkets but they can also be used for every type of cleaner for your home. Baking soda and vinegar can be used to unclog a drain, clean a microwave, prevent mildew in the shower, clean glass, clean carpets, and freshen odors.

Books & Resources

http://everydayroots.com/homemade-all-purpose-cleaner (instructions)
http://earth911.com/living-well-being/health/cleaning-vinegar-baking-soda-lemon/ (Cleaning your entire house with only vinegar, baking soda, and lemon)
http://www.treehugger.com/htgg/how-to-go-green-cleaning.html (How to green your cleaning routine)
https://www.organicconsumers.org/news/how-toxic-are-your-household-cleaning-supplies (Toxic household cleaning supplies)
http://www.ct.gov/deep/lib/deep/p2/business_industry/hospitality/what_hoteliers_should_know_about_green_cleaning_products_and_practices.pdf

Solar Car

Create your own solar car to prove how powerful the sun can be

Approximate time to complete activity: ~ 1 hour

Big Idea

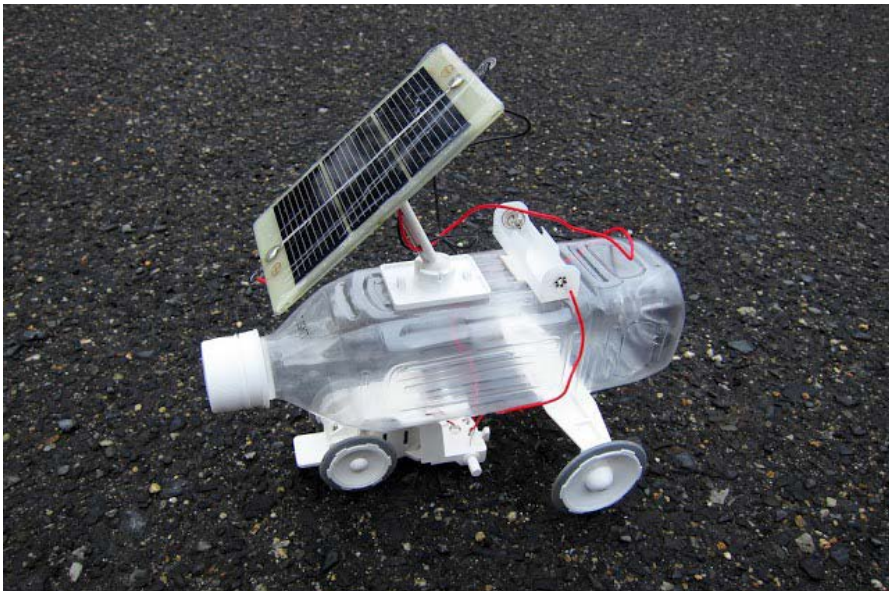
Learn how the sun can be a powerful source of electricity.

Learning Objectives

1. To design a solar car
2. To establish understanding about solar power
3. To discuss how a solar board is similar to a battery

Key Words

Solar power, conserve, energy, electricity, emissions, PV cells

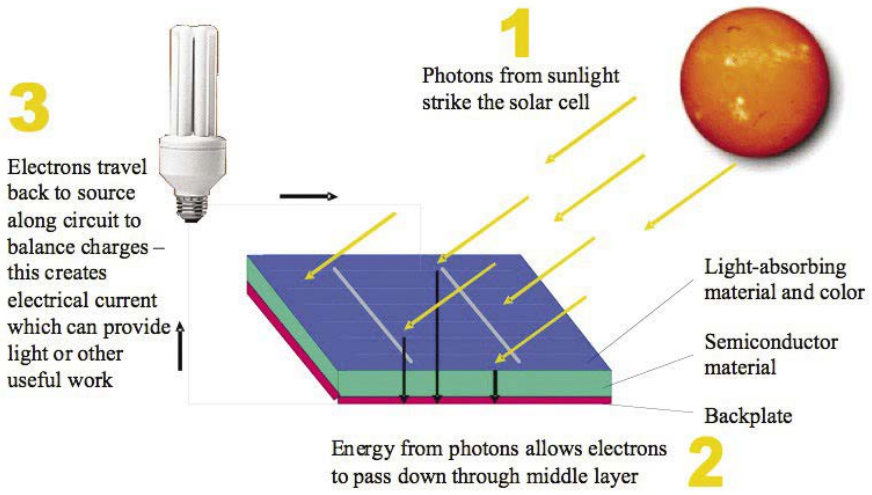


Materials

1. A solar board (10cm x 6cm)
2. A DC Motor 2 V, 145 mA
3. Tires and supporters from other car toys
4. A water bottle
5. Stand for solar board

Procedure

1. Assemble tires and supporters for the back two tires.
2. Assemble tires and supporters for the front tires and install motor into case (as shown in the video below).
3. Once you have all tires and supporters assembled, drill a hole into the bottom of the water bottle for the wires.
4. Pull the wires through from the bottom of the bottle to the top of the bottle, so that they are poking out.
5. Super glue the tires and the supporters onto the bottom of the water bottles.
6. Super glue the solar board stand onto the top of the water bottle.
7. Peel back the tape from the stand and place the solar board on top of the stand.
8. Connect the wires from the solar board to the wires from the motor (+ to +)(- to -) by twisting the ends together.



Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. What is solar power and how is it produced?	Solar power is power obtained by harnessing the energy of the sun's rays (solar energy). Solar power is produced by using photovoltaic (PV) cells made from silicon to convert sunlight into energy.
2. Why is solar energy a better alternative to electricity?	Unlike conventional power, there are no harmful emissions that hurt the environment, such as: carbon dioxide, carbon monoxide, sulfur dioxide, and nitrogen oxide.
3. How far is the sun and how long does it take for its energy to travel to Earth?	The sun is 90 million miles from Earth but it takes light less than 10 minutes to travel.
4. Although installing solar panels into a home is a great way to conserve energy, what are other ways you can conserve energy in your home every day?	Ways to conserve energy include: unplugging appliances, decrease water temperatures, only wash full loads of laundry, plant shrubs and trees nearby.

Books & Resources

https://youtu.be/4UVIysfZo_M?list=PLrDEqU4VG7ccqwM_sgC5FRnzbgxJtEjTI (Youtube video tutorial)
http://www.teacherstryscience.org/lp/racing-sun-creating-solar-car (Solar car lesson plan)
http://www.conserve-energy-future.com/various-solar-energy-facts.php (40 facts about solar energy)

Solar Oven

Heat up snacks using the sun's energy

Approximate time to complete activity: ~ 2 hours

Big Idea

Heat up food using solar energy and a reused pizza box.

Learning Objectives

1. To understand how the sun's light can be captured and transformed into heat
2. To build a solar oven
3. To explain the concept of radiation

Key Words

Solar power, solar energy, radiation, reflection, absorption, insulation, heat

Materials

1. Empty pizza box
2. Aluminum foil
3. Plastic wrap
4. Tape or glue
5. Scissors or X-acto knife
6. Ruler

Procedure

1. Cut a square-shaped flap on the top of the pizza box.
2. Glue or tape aluminum foil on the inside of the flap. Smooth out wrinkles and cut off any excess.
3. Tape plastic wrap on each side of the open space, creating a window on the pizza box. The tighter the plastic wrap, the more successful the solar oven.
4. Glue or tape aluminum foil onto the inside of the pizza box.
5. Tape or glue black construction paper onto the foil that is inside the pizza box.
6. Preheat the oven by leaving it direct sunlight for 30 minutes with the flap peeled back and the pizza box propped open with a ruler.
7. Once the oven has been preheated, place the food you wish to heat up in the center of the oven, directly under the plastic wrap. Foods that work best in the oven include leftovers, cheese, and chocolate.
8. Close the pizza lid and leave the foil flap propped up with a ruler.
9. Check on your food every 30 minutes, until it is completely cooked. Depending on the time of the day and other variables, it may take up to one hour.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. How does the solar oven get hot?	Sunlight is converted into heat energy. Rays of light are coming into Earth at an angle so the foil redirects that light back to the food in the solar oven. Once it has gone through the plastic wrap, it heats up the air that is trapped inside. The black paper absorbs the heat at the bottom of the oven, and the foil make sure that the heat stays where it is, instead of escaping out the sides of the oven.
2. Will you try to make a solar oven with your parents? What will you cook if you do?	Answers vary.
3. Why can't you recycle a pizza box that has too much grease or food stuck to it?	You can't recycle contaminated cardboard! Be sure to always clean or wash out your recyclables, including cans, bottles, cardboard boxes, and jars.

Books & Resources

https://youtu.be/xbwliZJiHe8 (Youtube Video Tutorial)
https://www.nasa.gov/sites/default/files/544871main_E3_SolarOven_C4.pdf (NASA Lesson plan grades 7-9)

Solar Print

Create a photograph using the sun's rays

Approximate time to complete activity: ~ 30 minutes

Big Idea

Learn about the sun's power and cyanotyping through solar printing.

Learning Objectives

1. To understand how the sun's light can create an image
2. To design a photogram
3. To explain the concept of cyanotyping

Key Words

Solar power, solar energy, radiation, heat, cyanotyping, photogram

Materials

1. Solar print paper
2. Towel
3. Water

Procedure

1. Gather objects or create art to lay on the solar paper.
2. Keep solar paper out of sunlight until ready to set out for printing.
3. Place images and objects onto the solar paper in a brightly lit area.
4. Remove after a few minutes of direct sunlight.
5. Take the paper out of the sunlight and remove your objects.
6. Run the paper under water for a few minutes.
7. Let the paper dry on a towel.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. What is cyanotyping?	Solar Print Paper produces prints by a process called cyanotyping. Cyanotyping involves treating paper with a solution of potassium ferricyanide and ferric ammonium citrate. The paper you buy has already been treated. When the treated paper is exposed to sunlight, the sunlight reacts with the iron on the paper. This starts a chain reaction which causes ferric ferrocyanide, or the pigment Prussian Blue, to form. Rinsing the paper washes the unreacted iron away. As the paper dries, the Prussian Blue color is revealed.
2. You made a photogram today. Does anybody know what that means?	A photogram is a photograph created through the use of paper and light.
3. How else can we use the sun's power and energy?	Make solar oven, solar fountain, solar car, solar energy

Books & Resources

https://www.amazon.com/gp/product/B001FD86EI/ref=as_li_tl?ie=UTF8&camp=1789&creative=390957&creativeASIN=B001FD86EI&linkCode=as2&tag=thehomescie-20 (Solar paper)
https://thehomeschoolscientist.com/solar-prints/ (Instructions)
http://www.sciencebuddies.org/blog/2010/03/sunny-photograms.php (Background Information)

Rainsticks

Capture the sound of rain in a paper towel roll

Approximate time to complete activity: ~ 45 minutes

Big Idea

Make a rainstick out of reused materials while learning about the water cycle and the history of sacred ceremonies around the world.

Learning Objectives

1. To learn about the water cycle
2. To create a rainstick
3. To discuss the history of rainsticks

Key Words

Rain, evaporation, condensation, rainstick, history, origins, ceremonies, sacred

kidsteachart.net

Materials

1. Paper towel roll
2. Aluminum foil
3. Construction paper
4. Duct tape
5. Mixture of: corn kernels, rice, small noodles
6. Construction paper or paper bags
7. Markers, crayons, sticker, strings

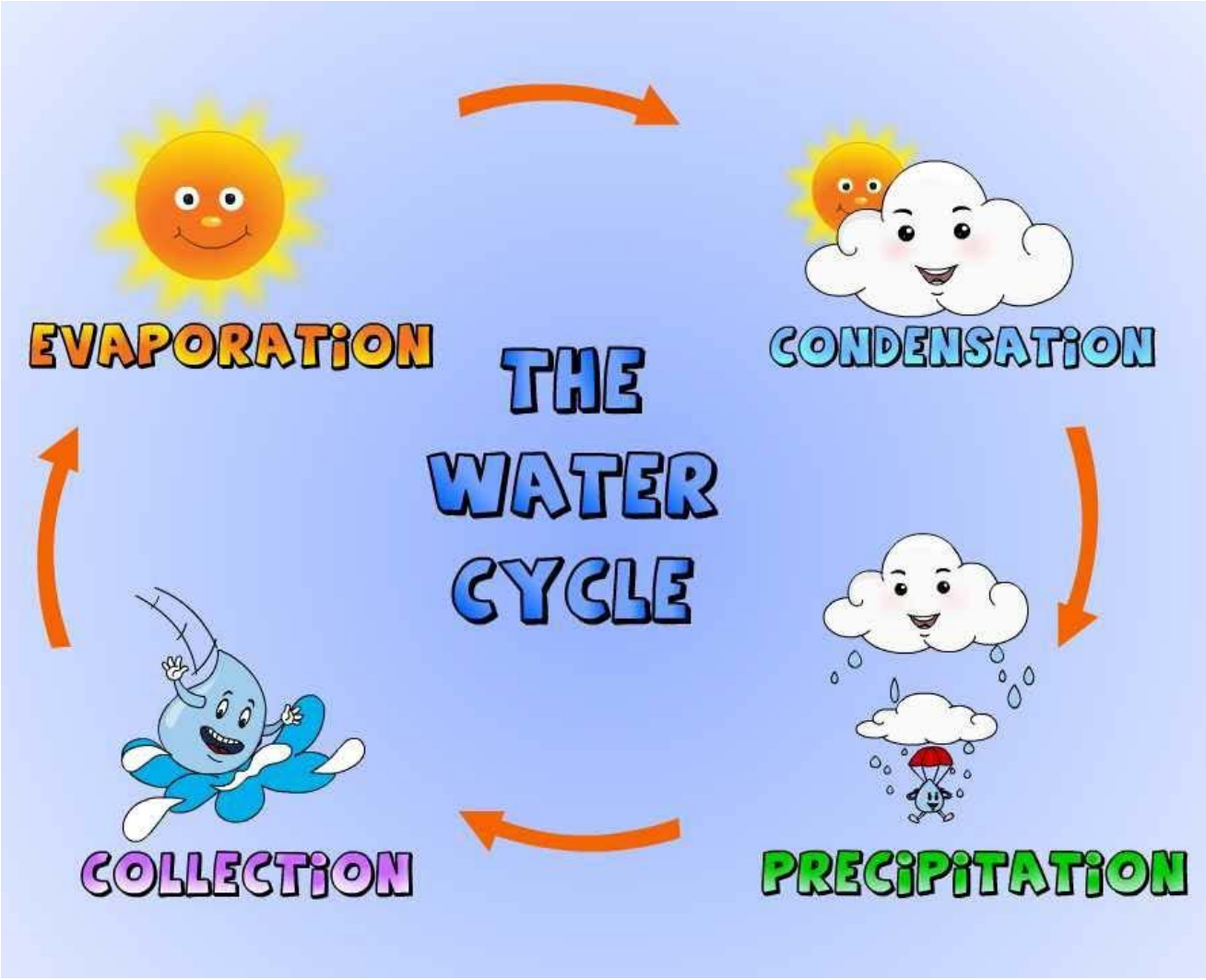
Procedure

1. Cover one end of the roll with duct tape.
2. Crumple a thin tube-shaped mass of aluminum foil and insert it inside of the roll.
3. Fill the inside of the roll with ¼ of grain mixture.
4. Cover the open end with duct tape.
5. Decorate a piece of construction paper with a design for your rainstick.
6. Tape/glue the paper around your roll.
7. Decorate your rainstick with string, stickers, and anything else you'd like.

Brief history of the Rainstick
(Healing.about.com)

Rainsticks are rattles made from dried hollowed out cactus sections. Thorns or seeds from the cactus are placed inside the hollow stem of the cactus and sealed inside. When the rainstick is turned top to bottom it creates a gentle rainfall sound. Origin of the rainstick is unclear but can be found today in different indigenous cultures including Africa, Central and South America, and in the United States desert regions. Rainsticks are a sacred instruments used in prayer ceremonies to bring about rain and thunderstorms. The rainstick is also used a musical instrument.

The Water Cycle



Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
Do you know the process of the rain cycle?	- The sun heats the ocean. - Ocean water evaporates and rises into the air. - The water vapor cools and condenses to become droplets, which form clouds. - If enough water condenses the drops become heavy enough to fall to the ground as rain/snow.
2. Where would you have put a paper towel roll if you didn't reuse it today? Do you know what it is made out of?	The recycle bin. It is made out of paper which comes from trees.
3. What were rainsticks used for?	Rainsticks are a sacred instruments used in prayer ceremonies to bring about rain and thunderstorms. The rainstick is also used a musical instrument.

Books & Resources

https://youtu.be/vOCYl4y3t98 (Youtube tutorial)
http://science.howstuffworks.com/nature/climate-weather/atmospheric/weather6.html (Rain cycle)
https://youtu.be/s0bS-SBAgJI (Youtube video of rain cycle)
http://peopleof.oureverydaylife.com/history-rain-stick-8707.html (Origin of rainsticks)
http://healing.about.com/od/lessons/a/rainsticks.html (Origin of rainsticks, 2)

Solar Fountain

Power the flow of water by using the sun's rays

Approximate time to complete activity: ~ 1- 1.5 hours

Big Idea

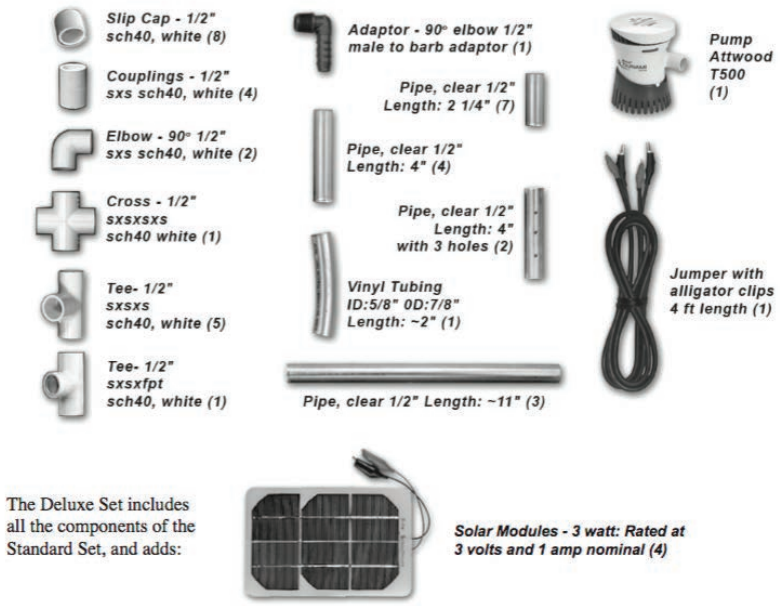
Learn about solar power by collaboratively assembling a solar water fountain.

Learning Objectives

1. To learn how solar panels function
2. To create a solar fountain
3. To measure and record the flow rate

Key Words

Solar, electric modules, sunlight, energy, water, flow rate



Materials

1. Solar Fountain Sculpture Set (Solarschoolhouse.org)
2. Bucket
3. Water

Procedure

The instructions can be found here: http://solarschoolhouse.org/wp-content/uploads/2015/12/SSH_SolarFountainSet_Guidev20110929.pdf

Purpose of the Solar Fountain

Solar fountains are a great way to show the relationship solar electric modules have with sunlight. As the solar modules are tilted more toward the sun, the water pumps faster. Casting a shadow on the modules slows or stops the water flow. These Solar Fountain Sculpture Sets include a 12 volt DC water pump and a large assortment of clear pipe and connectors to build a wide variety of fountain designs. The components are slip- t for quick assembly and disassembly, and for easy adjustment of designs. Sets include a complete User Guide with directions for building fountains and instructions for beginning and advanced solar electricity projects.

Assessment

Assessing the student's knowledge with Q & A

Various assessments can be found in the Solar Fountain Sculpture Set: User Guide: http://solarschoolhouse.org/wp-content/uploads/2015/12/SSH_SolarFountainSet_Guidev20110929.pdf

Books & Resources
http://solarschoolhouse.org/solarfountains/

Rain Cycle in a Car

Create your own water cycle indoors

Approximate time to complete activity: ~ 30- 45 minutes

Big Idea

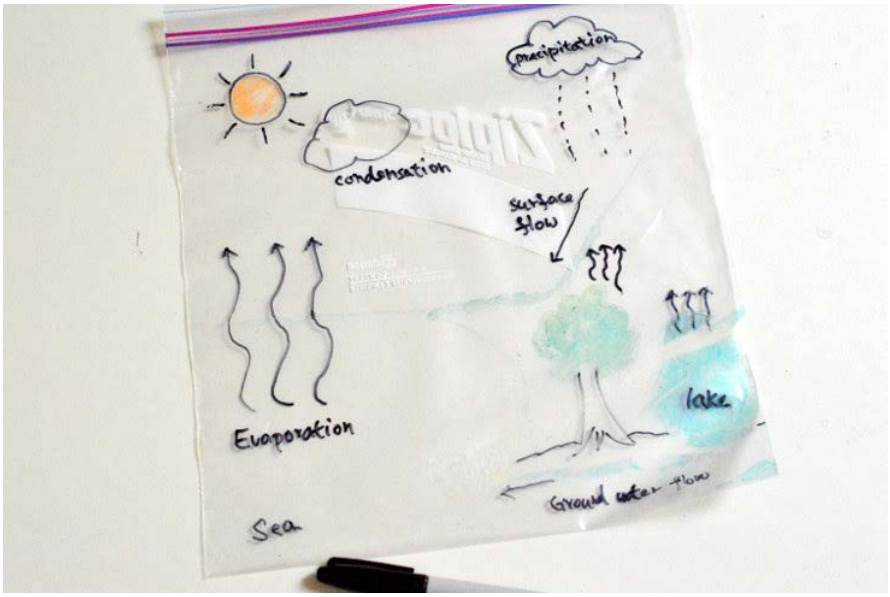
Learn about the process of the water cycle and how water is recycled with a simple hands-on demonstration.

Learning Objectives

1. To learn the stages of the water cycle
2. To discuss the three physical states of water on Earth
3. To describe the relationship between the water cycle and living things

Key Words

Rain, evaporation, condensation, water cycle, clouds, surface flow, groundwater

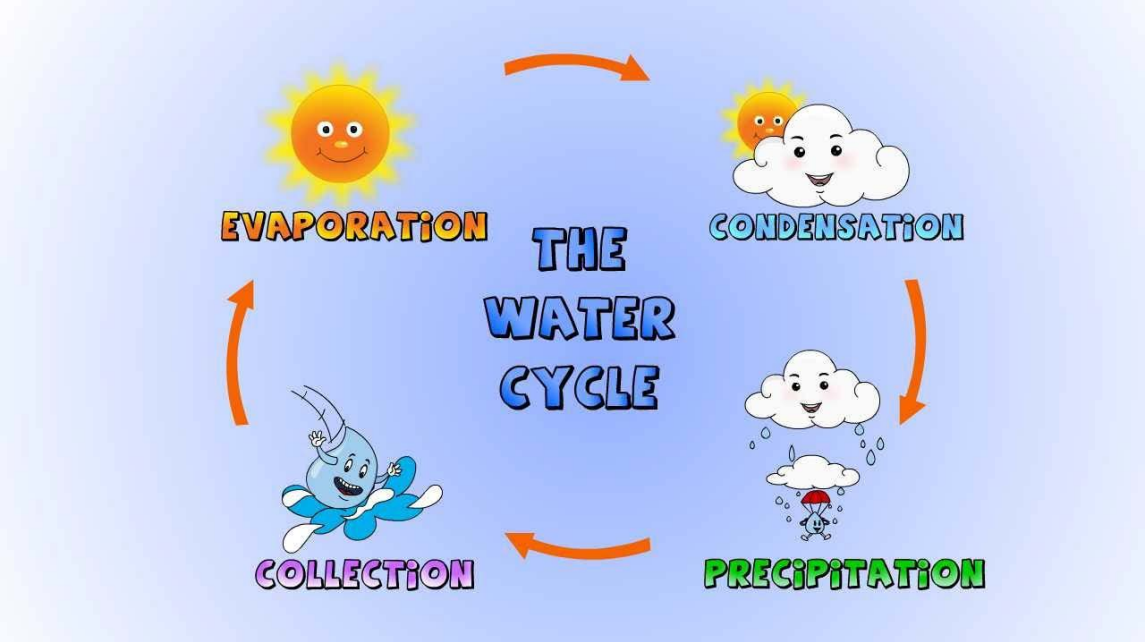


Materials

1. Reused plastic ziploc bag
2. Permanent markers
3. Water
4. Duct tape
5. Blue food coloring

Procedure

1. Draw the water cycle onto the reused plastic ziploc bag, pictured below.
2. Warm up water until steam starts to rise, but don't let it boil.
3. Add blue food coloring.
4. Pour the water into the ziploc bag and zip it up.
5. Hang the bag upright by duct taping it on a window.
6. As the water evaporates, vapors rise and condense at the top of the bag. A white patch can be seen resembling clouds in the upper atmosphere.
7. Water droplets will appear on the inside of the bag. They will eventually slide down. This represents the flow of water returning back to the sea.
8. If the water is still warm or if the bag is left on the window facing sunlight, it will keep cycling through the four different stages of the water cycle.



Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Do you know the process of the rain cycle?	- The sun heats the ocean. - Ocean water evaporates and rises into the air. - The water vapor cools and condenses to become droplets, which form clouds. - If enough water condenses the drops become heavy enough to fall to the ground as rain/snow.
2. How much percentage of the Earth's surface is made up of water? How about our bodies?	Water covers 70% of the Earth's surface and makes up approximately 60% of our bodies. This amazing natural resource is essential for life in both animals and plants.
3. What are the three physical states of matter that water appears on Earth?	Gas: vapor Liquid: water Solid: snow & ice

Books & Resources

http://www.rookieparenting.com/what-is-water-cycle/ (What is a water cycle)
https://www.youtube.com/watch?v=4WQBtAJxMbY (YouTube Tutorial)

Natural World

WWW.TRASHFORPEACE.ORG

Succulent Tire Garden

Reuse old tires to create a beautiful garden

Approximate time to complete activity: ~3 hours

Big Idea

Show children that they can utilize many different materials to build a garden while also decreasing their waste.

Learning Objectives

1. To create a tire garden out of old tires
2. To learn the benefits of having a backyard, community, or school garden
3. To learn which organisms benefit from the garden

Key Words

Reuse, repurpose, plant, habitat, volume, cubic feet, beneficial insects, desiccation

Materials

1. Used tires
2. Plastic burlap/tarp/plastic bags
3. Garden soil (that drains well but won't dry out too quickly)
4. Spray paint/ paint
5. Wood slats (3 boards per tire)
6. Hammer, saw, drill, staple gun, scissors, gorilla glue

Preparation

Be sure to clear the area of weeds and debris. Cut the wooden slats the size of your tire, 3 per tire. Cut burlap/tarp the same size as the tire.

Procedure

1. Start off by having the children paint the tires.
2. Drill holes in the tires for drainage.
3. Staple 3 wooden slats onto the burlap/tarp. Place the tarp into the tire and tack into place so that it is secure enough to hold the soil.
4. Use gorilla glue the tires together in the arrangement you wish.
5. The amount of soil you need depends on the size of the tires (Volume of tire= Pi x Radius squared x height). You then convert to volume in cubic inches to cubic feet, the metric used to sell soil (Volume in cubic inches x 1728= Volume in cubic feet). Math described in YouTube video below. Pack soil loosely into each tire and add succulents of your choice.
6. Enjoy the beauty!

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Why are we planting succulent plants in the tires and not flowers? Vegetables?	Because tires are black rubber, they're going to absorb heat from the sun, more than 14 degrees warmer than ground soil. The heat will eventually dry out your flowers/vegetables.
2. Can succulents die if they are too cold? (If yes, what temperature will kill them?)	Yes. Succulents will die if the temperature gets below freezing (32 degrees F).
3. Can you tell how much water a succulent needs based on the way it looks?	YOU BET! The thicker the leaves on a succulent the less water it needs. Succulent plants store water in
4. Where should you plant succulents? In shade or in the sun?	In the shade. Although succulents like the sun, they should not be in direct sunlight because they are very prone to sunburn.
5. If there is a pest issue, which beneficial insects can you introduce to keep your succulents healthy?	Ladybugs, lacewings, and mealybug destroyer

Books & Resources

http://lemonbeanandthings.blogspot.ca/2012/03/our-tire-planter.html
https://www.youtube.com/watch?v=rYga7n4mapU (Video Tutorial)
https://www.juicykits.com/pests-in-your-succulents/ (Healthy succulents)
http://www.succulentsandsunshine.com/how-to-water-succulent-plants/ (watering succulents)
http://needlesandleaves.net/blog/2013/5/31/propagating-leggy-succulents (Growing new succulents from old succulents)

Clamshell Greenhouse

Reuse clamshell containers to create an indoor garden

Approximate time to complete activity: ~ 1 hour

Big Idea

Provide an opportunity for students to have their own garden even if they do not have a garden space at home.

Learning Objectives

1. To earn how to manage plants
2. To identify what a seed does
3. To track the progress of the seeds

Key Words

Soil, seed, plant, grow, greenhouse, temperature, germination

https://newengland.com

Materials

1. Empty clamshells: strawberry containers, salad boxes, takeout boxes, dessert boxes, etc.
2. Potting soil
3. Seeds
4. Seedling cups- egg carton (optional)

Preparation

Spread out newspaper where the activity will take place (if happening indoors).

Procedure

1. If using seedling cups, fill ¾ with soil. If you are using the entire clamshell, fill ¾ with soil.
2. Plant one seed into each seedling cup.
3. Be sure to water each seedling, just enough to moisten. A spray bottle works well.
4. Close the lid on the container and be sure that the soil remains moist.
5. After the seeds have germinated, remove the lid to allow the seedlings to grow without damping.
6. When the seedlings begin to outgrow the clamshell space, re-pot them into larger containers.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Why is it important to water your plant properly? Not too much but not too little.	Just like humans, plants need water to survive.
2. Why is it important to begin the plant in a clamshell?	The clamshell serves as a "greenhouse," to protect the seed/plant from cold temperatures.
3. After the seed has been taken care of for about a week or two, what should you expect to see? What is that process called?	Germination! It is the process by which a plant grows from a seed.
4. What is photosynthesis?	It is a process used by plants to convert light energy into chemical energy.

Books & Resources

http://www.countingmychickens.com/10-things-that-can-be-recycled-for-the-garden/
https://newengland.com/today/living/gardening/make-a-mini-greenhouse-with-recycled-items/
http://www.scholastic.com/teachers/book/tiny-seed#cart/cleanup(Book: The Tiny Seed)
https://youtu.be/XKOBWbR4T5I (YouTube DIY Video)

Plastic Pots

Reuse old plastic bottles to create a pot for a succulent

Approximate time to complete activity:
~ 1-2 hours (depending on amount of paint waiting to dry)

Big Idea

Teach children that their waste can be reused to contain new life.

Learning Objectives

1. To learn how to plant a succulent
2. To discover the benefits of healthy soil
3. To create a pot out of a plastic bottle

Key Words

Succulent, plastic bottle, soil, water, sun, pot, rocks

Materials

1. Plastic bottles
2. Markers
3. Paint & paint brushes
4. Scissors/knife
5. Soil
6. Succulents

Preparations

Spread newspaper on the area where painting will be taken place.

Procedure

1. Have your students draw a line on the bottle at whatever height they would like their pot to be. If students want to have an animal shaped pot, help them draw ears if needed.
2. Cut the bottle as marked with a pair of scissors.
3. Have students paint their planters with patterns, words, or as an animal.
4. Allow the paint enough time to dry.
5. Use this time to collect little rocks outside, used for filtration and drainage.
6. If more time is needed for the paint to dry, consider completing the assessment below.
5. After the paint has dried, fill the pots with the rocks, followed by the potting soil, and lastly add a succulent of your choice.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Why is it important to use rocks at the bottom of our plant?	Succulents naturally grow in sandy soils that drain quickly. Succulent roots should never be left in wet soil. The rocks help move water through the soil to prevent the roots from rotting.
2. How can you tell if you are overwatering your succulent?	The leaves become yellow or white.
3. Can you tell how much water a succulent needs based on the way it looks?	The leaves will turn brown and fall off?
4. Why don't succulents need a ton of water?	Succulent leaves store lots of water for long periods of time.
5. Where is an ideal location to place an indoor succulent?	They need to be put in bright, well lit areas, but should not be in direct sunlight for long periods of time.

Books & Resources

http://goodiy.blogspot.com/2014/02/transform-plastic-bottle-into-flower-pot.html (Examples of plastic bottles pot)
https://youtu.be/fno1mofz60c (YouTube Tutorial)
http://www.succulentsandsunshine.com/guide-growing-succulents-indoor-house-plants/ (Growing healthy indoor succulents)

Seed Bombs

learn how to beautify an abandoned urban plot with seed bombs!

Approximate time to complete activity: ~ 1.5 hours

Big Idea

Teach students how to make seed bombs and plant them in neglected areas.

Learning Objectives

1. To learn how to make a seed bomb
2.To understand what guerrilla gardening is
3. To understand the importance of native flowers
4. To recognize which areas are suitable for planting seed bombs

Key Words

Seeds, clay, guerrilla gardening, compost, water.

Materials

1. Large bucket
2. Native flower seeds
3. Soil/Compost
4. Clay
5. Water
6. Knife
7. Egg carton (optional)

Preparations

Make sure you make your seed bombs on a sunny day! Check to make sure your flower seeds are native to your area.

Procedure

1. Mix 5 parts clay, 1 part compost, and 1 part flower seeds in a large bucket. Add a few drops of water to the mix - but not so much that the mixture turns into a goopy mess.
2. Knead with your hands and make sure all ingredients are combined.
3. Form the mixture into a ball and then flatten it out on a hard surface. With a knife, cut the “dough” into 1-2 inch pieces and roll into small balls.
4. Leave the seed bombs out in the sun to harden and dry. Seed bombs can be stored in a dry egg carton if they are not going to be used for a period of time.
5. Inform students that seed bombs are used by “guerrilla gardeners” to plant seeds and grow flowers in locations where gardeners might have difficulty planting a traditional garden. Guerrilla gardening is an easy way to brighten up abandoned or unused plots of urban land. Using native flower seeds ensures that the seed bombs will grow and be effective.
6. Participants will find empty lots/planters/random patches of soil in their neighborhoods to plant their seed bombs. Seeds will grow with no help from the gardener as long as they are planted in areas with a lot of soil and rain.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. What are the four ingredients you need to make a seed bomb?	Clay, compost, seeds, and (a little bit of) water.
2. What do guerrilla gardeners do?	They make and throw seed bombs in abandoned or unused plots of soil in an effort to beautify urban areas.
3. Why is it important to make sure you are using native flower seeds?	Only certain flowers can grow in certain areas of the world. Using seeds that are native to your city or state ensures that the flowers will grow effectively.
4. Where should you throw your seed bombs?	In plots of empty soil that are abandoned or unused.
5. Do you need to water your seed bombs?	Nope! The rain will naturally water your seeds.

Books & Resources

https://youtu.be/yuBYZO7F-No (YouTube Video Tutorial)

Leaf Animals

Use fallen leaves to create a piece of art

Approximate time to complete activity: ~45 minutes

Big Idea

Use items found in nature to create art and discover why not all leaves are the same color.

Learning Objectives

1. To learn the importance of chlorophyll
2. To determine which type of trees lose their leaves
3. To understand the reasons why this phenomenon only takes place during Fall

Key Words

Fall, chlorophyll, adapt, deciduous, temperature, pigment

Materials

1. Leaves
2. Glue
3. Paper
4. Crayons, markers, colored pencils
5. Paper bags

Preparation

Collect a variety of leaves and twigs to inspire the children to find a variety of different colored leaves and objects.

Procedure

1. At the beginning of session, show the students your collection of leaves and encourage them to collect leaves from different trees.
2. Give each student their own bag and take them on a nature walk to collect leaves.
4. Once the students are back in the classroom, give each student a piece of paper or construction paper.
5. Explain to the students that they will be using different leaves to glue down and form their own leaf animal.
6. Once the whole class has finished, have each student share a fact or a story about their animal.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. What season of the year do the leaves fall off the trees and why?	It happens in Fall due to colder temperatures and shorter periods of daylight.
2. Why do leaves change color during the Fall?	Chlorophyll is a chemical in leaves which gives a leaf it's green pigment. Due to Fall's conditions, the leaves stop their food-making process and the chlorophyll breaks down, allowing the leaves to display other pigments.
3. Which trees typically lose their leaves?	Deciduous trees! Maple, Horsechestnut, Serviceberry, and Birch.

Books & Resources

https://www.amazon.com/Look-What-Did-Leaf-Naturecraft/dp/0802774407 (Book: Look What I Did with a Leaf!)
http://www.esf.edu/pubprog/brochure/leaves/leaves.htm (Why leaves change color)

Hanging Stick Art

Appreciate nature even when you are indoors

Approximate time to complete activity: ~ 1 hour

Big Idea

Discover more about trees through art.

Learning Objectives

1. To understand what parts make up a tree
2. To design and create hanging stick art
3. To learn the importance of trees

Key Words

Tree, twig, branch, trunk, root, crown, leaves, decompose, oxygen, soil

Materials

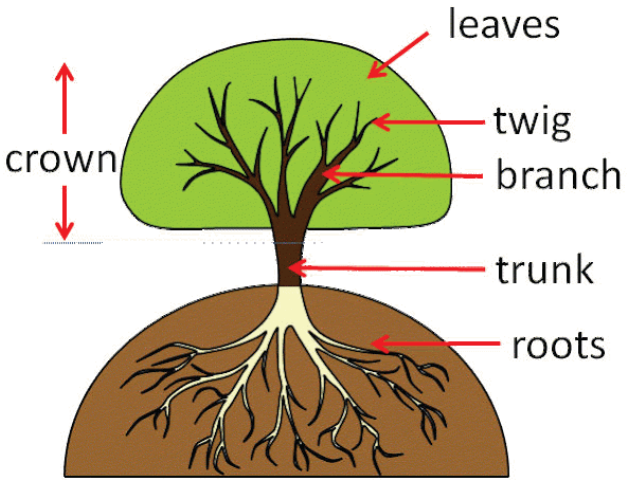
1. Sticks
2. String or jute
3. Paint
4. Paintbrushes
5. Tarp/newspaper
6. Scissors

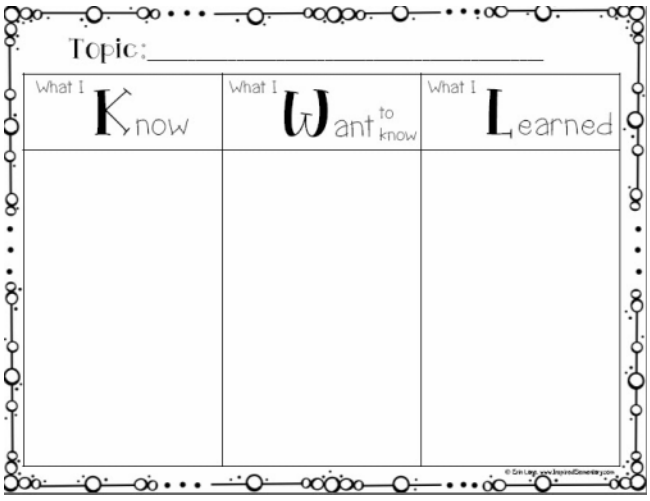
Preparation

Prepare the painting area by laying out tarp or newspaper.

Procedure

1. Allow students to form a design on paper of the layout for their hanging wall art. Here are two options for the layout design.
2. Have students step outside and collect 5- 15 twigs/sticks.
3. Let students paint sticks as they would like. If stripes are desired, apply tape and paint around the tape and peel off afterwards.
4. After everyone finishes painting their sticks, have each student write their name on a sheet of newspaper. That sheet of paper will be where the student leaves all of their sticks to dry. While the sticks are drying, do the assessment below
5. After the sticks have dried, pass out pieces of string so the students can assemble their wall hanging as they wish.
6. Students can take home and hang in their home.





Assessment

Assessing the student's knowledge with an activity

(http://www.wesselmannaturesociety.org)

Procedure

1. Create a large K-W-L chart on the whiteboard or on a large sheet of paper and have each student fill out the K and W section, "What they know about trees and what they want to know about trees."
2. Draw the tree above with the arrows and try to have the students guess which word goes in each spot.Fill in the slots little by little after having them guess. Ask them which parts of the tree they used today to make art.
3. Talk about any of the following tree characteristics, why trees are important, and correct any misconceptions in the "K" section:
    - Trees provide shade & cool spaces
    - Trees release oxygen
    - Tree roots keep dirt from washing away
    - Trees provide homes and food for wildlife
    - Fallen leaves and branches decompose and enrich the soil
4. Ask students if they would like to fill in the "L" section on the chart.

Books & Resources

https://www.amazon.com/Tell-Me-Tree-About-Trees/dp/0316309036 (Book: Tell Me About Tree)

http://www.wesselmannaturesociety.org/wp-content/uploads/TREE-MENDOUS-TREES-Supplement-Lesson-Plans.pdf (Tree Lesson Plans: 3rd grade)

Plant Hanger

Learn to make your own plant hanger with a 2 liter bottle

Approximate time to complete activity: ~ 1 hour

Big Idea

Reuse a plastic bottle to put some green in your home!

Learning Objectives

1. To learn why it is important to reuse and recycle
2. To design a macrame plant hanger
3. To identify what is required in order to grow a healthy plant

Key Words

Plants, seed, recycle, reuse, energy

Materials

1. 2-liter bottle
2. X-acto knife
3. Paint & paint brushes
4. String
5. Soil
6. Seeds/flowers

Preparations

Cut out small cardboard rings for the wreaths. Also consider having traceable leaves for them to trace and cut for the wreath.

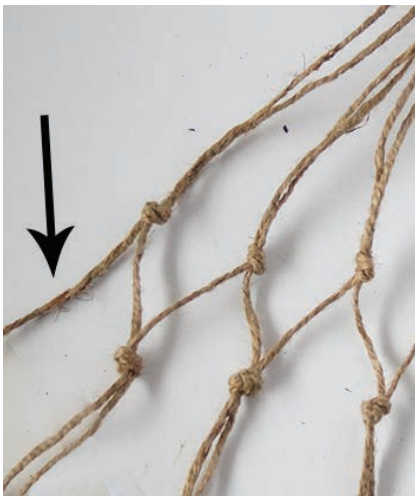
Procedure

2-liter half

1. Use the X-acto knife to cut the bottle into two pieces, as shown in the picture. You will only be using the bottom half, which should be about 3-4 inches high (you may do this step as preparation if the students are too young to cut their own bottles).
2. Have students decorate their bottle using paint and paint brushes. The bottles should dry fairly quickly (15- 20 minutes).
3. While the bottles are drying, start doing the macrame plant hanger.

Macrame Plant Hanger

1. Line up all of the 6 strings evenly and tie a huge knot. That end will be the bottom.
2. Tape that end down onto the table.
3. Tie each pair of strings into knots, 2.5 inches from the huge knot that has been created. With each of the strings paired, there should be 3 knots created.



Macrame Plant Hanger

1. Line up all of the 6 strings evenly and tie a huge knot. That end will be the bottom.
2. Tape that end down onto the table.
3. Tie each pair of strings into knots, 2.5 inches from the huge knot that has been created. With each of the strings paired, there should be 3 knots created.
4. Now, tie another knot 2.5 inches high from the knots just made. This time, criss-cross the strings so that a knot is being made with a neighboring string.
5. You can go 3-4 knots high, depending on how you want it to look.
6. Once all of the knots have been tied, create one huge knot with the loose ends the same way the bottom knot was done.
7. Slide the decorated 2-liter half into the hanger and fill with your soil and favorite plant!

Assessment

Assessing the student's knowledge with Q & A

	Answers
1. What are some things that your plant needs in order to grow and be healthy?	Water, sunlight, soil
2. Have you ever made anything out of a plastic bottle before, or was today your first time? If you are not reusing a plastic bottle, which bin should you throw it in?	The blue bin/recycle bin
3. Why is it important to reuse and recycle?	Saving natural resources: reusing discarded products and using recycled materials to make new products reduces the use of virgin materials, which often involves harvesting trees and mining the earth. Energy is saved by not using products and materials when at all possible, or by reusing products in their current form.

Books & Resources

http://savedbylovecreations.com/2014/04/diy-macrame-mason-jar-hanging-planter.html
(Step-by-step picture tutorial)

Nature Scavenger Hunt

Get to know nature with this scavenger hunt

Approximate time to complete activity: ~ 45 minutes

Big Idea

Observe the natural world and determine which characteristics each item possesses.

Learning Objectives

1. To gain a better understanding of the natural world
2. To increase observation skills
3. To identify various items in nature and describe them

Key Words

Scavenger hunt, nature, identify, details, adjective, senses,

Materials

1. Scavenger hunt printed sheets & list of adjectives
2. Pens/pencils
3. A whiteboard or huge white sheet of paper

Preparations

Design your own list of adjectives for the scavenger hunt (examples: smooth, rough, wet, dry, prickly, bright, fast, slow, big, small, symmetrical, etc.)

Procedure

Introduction

1. Pass out the sheet of paper with adjectives. Ask students if they know what they mean. Describe any adjectives the students might not understand, or let students who know enlighten others.
2. Pass out the scavenger hunt sheets.
3. Discuss rules & expectations before setting out to go on the hunt

No fighting over the same object, we are just observing!

Do not pick flowers, rip out bark, or step on bugs; respect nature.

No pushing or running.

4. Encourage students to write down details about each item and use the adjective list you have created

Activity

1. Allow students 15/20 minutes to fill out their scavenger hunt sheet while walking around
2. Check up on students throughout the activity and pair up students who are struggling with students who are excelling.
3. After the time is up, collect the students in a line and verify that none of the students are bringing pieces of nature back with them into the classroom.

Reflection

Pair students up to share their observations with a partner. After pairing up and sharing for ~10 minutes, come back as a group and share with everyone. Consider putting up this chart on a whiteboard/piece of paper to encourage students to share.

Name:_____

Choose one object you observed on the scavenger hunt.

What is it?
- **Draw a picture of it**
- **Describe it**
- **Tell us a story about what you thought it was doing**

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. What were three different noises you heard? Were any noises new?	Answers vary.
2. How many different shaped leaves did you see? How many different colored leaves did you see?	Answers vary.
3. Why is it important to respect nature? What does this include/mean?	Respecting nature means we leave living things in their natural environment. We do not litter or pollute our earth and we keep all living things safe. " Did you know 10 000 species of living things go extinct every year? People need to respect nature and living things because the environment is important. I know that hurting the environment hurts animals and pollutes the earth when we don't. Without plants and trees we would not be able to survive. The environment is also good for and healthy for you and helps you breathe. Have you ever heard the saying "get outside for some fresh air?" Well if we pollute the earth and air there will not be any fresh air and that is hard to live with." **- http://learningin21.edublogs.org/**

Books & Resources

http://extension.wsu.edu/clark/wp-content/uploads/sites/36/2015/12/Lesson-Plan-Activity-Nature-Walk.pdf (Washington Extension University: Lesson Plan)
http://ac.els-cdn.com/S1877042810003563/1-s2.0-S1877042810003563-main.pdf?_tid=0adc2658-1335-11e7-a27c-00000aab0f01&acdnat=1490650599_ce58bf960f83bc92eb82bae438ddcce6 (How to help children understand & respect nature)

Natural Dye

Use ingredients from your kitchen/backyard to create dye

Approximate time to complete activity: ~ 1- 2 hours

Big Idea

Learn how to plants you are familiar with can naturally dye items around your house.

Learning Objectives

1. To compare natural dyes and synthetic dyes
2. To discover ways to reuse spoiled foods, food scraps, or old flowers
3. To identify 4 different fruits/vegetables that could be used as a natural dye

Key Words

Natural dye, synthetic, traditional, natural resources, food scraps, zero-waste

Materials

1. Food, spices, flowers (for your dyes)
2. Gloves
3. White cotton, white wool, white silk and/or eggs
4. Pots
5. Containers for dyes
6. Salt & vinegar (depending on fruit/vegetable)
7. Stovetop/microwave
8. Rubber Bands (optional)
9. Tablecloth, tarp, or newspaper

****NOTE: 100% cotton, 100% wool, & 100% silk work best****

Preparation

Optional time saver: Steep materials for less time or use juice from fruits or vegetables. Many vegetable and fruit juices such as carrot, pomegranate, and grape need no special preparation other than pouring into a container. Dried herbs and spices may also be steeped in water for a simple dye preparation. Caution – the resulting shade of color will be lighter and more prone to fading using either of these methods. Practice beforehand at home so you will know how long it will take to fully dye a nice color.

Procedure

Stove-top Directions

1. Place ingredients and water into a pot. Place ½ cup of ingredients for every 1 cup of water.
2. Boil water with ingredients submerged into the water.
3. After boiled for 20 minutes, drain the water and place back into pot without particles of the vegetable/fruit.

4. Simmer water with clothing or egg inside. The longer the item is in the water, the brighter the color will be. **For a radiant color, plan on placing it in the water for 1-2 hours. If short on time, consider using turmeric or fruit/vegetable juice instead of strained vegetable/fruit water. That will save you about an hour of time**

Electric water kettle/Microwave Directions

Use this option if there is no accessible stove, but stovetop will give the best results.

1. A water kettle would work better than a microwave. Fill up the kettle with water and turn on the kettle.
2. While the water is heating up, have the students all contribute pieces of what will be used for dye to prepare the container where you will be pouring the hot water. For example, have them crush up berries to be placed into the container, or take turns shaking turmeric into the container.
3. After all students have contributed to the container, pour in the hot water.
4. If choosing to do multiple color dyes, let the students choose which color they would like their egg or article of clothing to be dyed.
5. Depending on the type of vegetable/fruit/plant chosen for the dye, times vary for dye time.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Does anyone in your house ever throw away food scraps or pieces of fruits and vegetables? Do you think you could use those to make any natural dyes?	Answers Vary.
2. Test the students after they observe the chart on the previous page about different colors of dyes. Write down each item on the board/a large sheet of paper and have them volunteer to predict which color dye it will create. Try to have examples of most of these items incase students don't know what it is. If you are unable to get all examples, print pictures of each item.	Strawberries, Cherries, Raspberries, Roses, Beets, Choke Cherries, Marigolds, Carrots, Fennel Flowers, St. John's Wort, Onion Skins, Acorns, Walnuts, Coffee, Tea, Chamomile Leaves, Spinach, Grass, Peppermint, Red Pine, Cornflower, Blackberries, Juniper Berries, Mulberries, Hyacinth Flower, Blueberries, Pokeberries
3. Why is it better to use natural dyes as opposed to synthetic dyes?	Synthetic dyes are very hazardous to health and are banned in countries with advanced environmental and public health laws, such as the European Union.

Books & Resources

https://theeasyblues.wordpress.com/2015/05/22/natural-dyeing-colours-from-the-supermarket/ (Natural dye ideas)
http://omsi.edu/exhibitions/row/docs/Roots-of-Wisdom_Exploring-Natural-Dyes-Activity-Guide.pdf (OMSI: Exploring natyral dyes)
http://www.teach-nology.com/teachers/lesson_plans/history/dyes35.html (Natural dyes lesson plan)
http://www.greeneducationfoundation.org/institute/lesson-clearinghouse/353-Painting-with-Natural-Dyes.html (Painting with natural dyes)
http://playfullearning.net/2013/06/all-natural-tie-dye-diy/ (DIY tutorial)
http://www.hgtv.com/design/make-and-celebrate/handmade/dye-a-shirt-with-veggies-and-fruits
http://pioneerthinking.com/natural-dyes (Plant material available for dyes)

Health

WWW.TRASHFORPEACE.ORG

Low Cost Snacks

A number of quick and inexpensive snacks

Approximate time to complete activity: Varies per snack/if children will be involved in preparation

Big Idea

Teach children that eating healthy can also mean eating yummy, inexpensive snacks!

Learning Objectives

1. To learn the benefits of healthy eating
2. To discover how to make after-school snacks
3. To introduce students to "zero-waste."

Key Words

Healthy, nutrition, zero-waste, calories, serving, nutrients

Rice Cake Pie

1. Rice cakes
2. Peanut butter
3. Choice of fruit.

Smear peanut butter on the rice cake. Place sliced fruit on top. Enjoy!

Cinnamon Apple Crisps

1. Apples (cored and thinly sliced)
2. 1-2 tsp cinnamon
3. 1-2 tsp of sugar
4. Cooking spray

Preheat oven to 200 degrees F. Coat Apples with cinnamon and sugar. Spray Baking sheet with cooking spray. Bakefor 2-3 hours, until the chips are dry and yet soft. Allow them to cool completely before placing them in an airtight container (4 days maximum).

Hummus and Avocado Toast

1. Multi-grain bread
2. Hummus
3. Sliced avocado
4. Sliced tomato
5. Seasoning: salt, pepper, & cayenne pepper

Toast your pieces of bread. Spread hummus on each piece of bread. Top the slice with sliced tomatoes and avocados. Sprinkle each slice of toast with seasoning.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Do you enjoy eating fruits and vegetables? Why or why not?	Answers vary
2. Display a nutrition label for the class using an item you cooked with What is the serving size? What does that mean? How many calories are there? How many is a moderate amount?	A serving size is the suggested portion size. Use the serving size to measure the amount of calories that you are consuming. 400 or more calories per serving for a single food is high, aim for a moderate amount of 100 calories.
3. Which nutrients do you want more of? Why nutrients do you want less of.	More: Potassium, fiber, Vitamins A & C, Iron, and Calcium Less: Trans fat, Saturated fat, cholesterol, sodium, and sugars.
4. Which snacks do you enjoy eating? (Pull up their nutrition labels and review with class why it is or is not a healthy snack)	Answers vary.
5. Our snack involved zero-waste. Do you know why?	Fruits and vegetables do not come in containers or bags, therefore creating less waste!

Books & Resources

http://www.carriesexperimentalkitchen.com/cinnamon-apple-chips/ (Apple Chips)
http://www.whereyougetyourprotein.com/hummus-avocado-toast/ (Hummus & Avocado Toast)
http://undressedskeleton.tumblr.com/post/46019560408 (Rice Cake Snacks)
http://www.pcrm.org/sites/default/files/pdfs/health/Nutrition_for_Kids.pdf (Nutrition for Kids: Concept of The Power Plate pg. 6-10)
https://classroom.kidshealth.org/classroom/prekto2/personal/nutrition/healthy_snacking.pdf (Lesson plan on healthy snacking)
http://www.fda.gov/downloads/Food/IngredientsPackagingLabeling/LabelingNutrition/UCM410490.pdf (Reading the nutrition label)

Community Cookbook

Make a book with your favorite meals/snacks

Approximate time to complete activity: ~ 1 hour

Big Idea

Give your students something to take home that helps them remember how to cook their favorite snacks or meals.

Learning Objectives

1. To learn recipes of foods they have prepared
2. To create their own cookbook images
3. To work on a collaborative project

Key Words

Healthy, zero-waste, serving, ingredients, recipe

Materials

1. Markers
2. Paint & paint brushes
3. Crayons
4. Colored pencils
5. Paper

Procedure

1. After you have had a few cooking classes with your students, you can have them draw their favorite meals or recipes.
2. Provide the students with art supplies and paper and let them draw whatever they would like to be in the cookbook.
3. After the class has ended, scan all the artwork and save the files onto your computer.
4. Create a cookbook on a word program of your choice or Google Docs.
5. Create the following sections: 1) cover page 2) table of contents 3) Steps for a zero-waste kitchen 4) food preservation 101 5) Recipes
6. Incorporate pictures the students created throughout the cookbook.
7. In each recipe, include ingredients and serving size.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. What is your favorite recipe you have made?	Answers vary.
2. What is one way to reduce waste in the kitchen?	Compost your unused food scraps, pack up leftover food to eat later, use fresh foods and foods bought in bulk in your recipes (as opposed to packaged/processed foods).
3. Name three healthy foods you can eat.	Fresh fruits and vegetables, whole grains (wheat breads and pastas), lean meats (turkey and fish).

Books & Resources

https://www.scholastic.com/teachers/lesson-plans/teaching-content/activity-plan-4-5-classroom-cookbook/ (Lesson plan ideas)
https://docs.google.com/document/d/1GOYFa1YlNyyA3EKbfCV9NPwt0lOjgaXhWtfxiwl4eic/edit?usp=sharing (Trash for Peace Dekum Apartment Cookbook)

Classroom Yoga

Get the class moving with yoga!

Approximate time to complete activity: ~ 1 hour

Big Idea

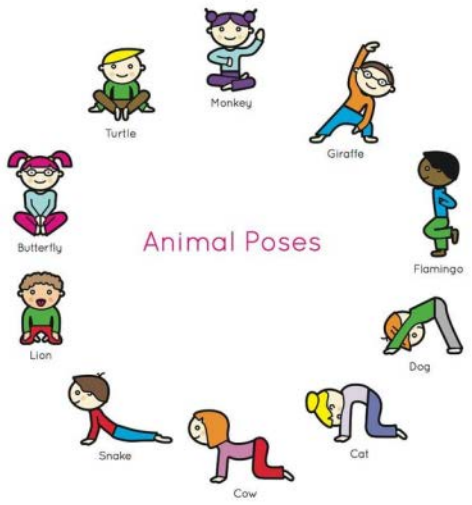
Introduce students to the practice of yoga to promote movement and relaxation.

Learning Objectives

1. To improve kinesthetic sense
2. To stretch major muscle groups
3. To refresh and recharge the mind

Key Words

Inhale, exhale, stretch, pose



Materials

1. Yoga mats or bath towels
2. Printed out PDF of yoga coloring pages
3. Crayons & colored pencils

Preparations

Reserve a room with a big open space or clear a room of desks and chairs. Design a lesson plan that involves: Set-up, opening circle, a moment of stillness, playful movement, focused movement, wind down with a story, final relaxation.

Procedure

1. Have the students help you spread the mats onto the floor in a large open space.
2. You can turn the lights off if needed to relax the students.
3. Designate an object known as the “talking stick.” Explain that only the student who has the talking stick may speak at that time.
4. Begin the class by doing various animal stretches. Below is a picture of 10 animals stretches. Introduce all 10 and practice each of them and then alternate at the end, speeding up the rate at which you yell the animal pose.
5. Go around the class and have the student pose as their favorite animal.
6. Gather in a circle and introduce the tree pose and have each student do the tree pose while supporting their neighbors with their hands out.
7. Repeat the tree circle pose but this time have students hop in a circle on one foot without falling. Repeat going the opposite direction.

9. Have each student pose in downward dog with their eyes closed as you pass around beanie babies or small toys on their heads. After each student has received a toy have them get up slowly without dropping their friend.
10. Finish the class by doing different animal poses as done before, but this time with their toy/beanie baby on their head.
11. Finish the class by doing some relaxing stretches.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. What was the name of your favorite pose that we did today?	Answers vary.
2. Did you feel calm today while doing yoga? Did you enjoy it?	Answers vary.
3. Did you learn any new muscles in your body today?	Answers vary.

Books & Resources

http://www.kidsyogastories.com/seasonal-kids-yoga-lesson-plans/ (Seasonal yoga lesson plans)
https://www.youtube.com/user/CosmicKidsYoga (Yoga Youtube videos)
http://best-diy-of-the-day.blogspot.com/2013/12/not-quite-craft-but-kid.html?m=1 (elephant doing yoga poses coloring sheet)

Recycl-ympics

Learn about recycling while playing games!

Approximate time to complete activity: ~ 1-2 hours

Big Idea

Get the students up and moving with fun and interactive games to help inform them about recycling and reusing.

Learning Objectives

1. To exercise
2. To determine which objects on the obstacle course are recyclable
3. To discover different ways to reuse items to create games

Key Words

Exercise, sports, physical education, relay race, field day, recycle, trash

Have an adult/mentor at each station to educate students before each activity runs. Ask students what they think is recyclable and ask them what that means.r

Materials: Newspaper or old paper, cones/string, measuring tape

Preparation: Designate a starting point by using a cone or string.

Procedure: Have students split into teams of two. Instruct the students to create their own airplane in the next 2 minutes. Have the students in different lines compete against one another. The longest flight wins!

Materials: 20 plastic bottles, 2 small balls, string, measuring tape

Preparation: Fill each bottle with one inch of either sand or water.

Procedure: Set up two “lanes,” each having 10 plastic bottles as bowling pins. For a ball you can use tennis balls or any lightweight ball you have. Set up a line using tape or string 15 feet away. Students must stand behind this line when bowling. Each player gets 2 bowls per turn and everyone should get 5 turns each.

Materials: Aluminum cans, a stand, and a ball

Preparation: Designate a starting point by using a cone or string, where students must stand behind when throwing the ball.

Procedure: Have students stand in two lines (or one) and allow them to take turns knocking down the cans. You can also go through the line 3 times, moving the starting point back further each time.

Materials: At least 2 coffee bean sacks

Preparation: Designate a starting point and an end point on the opposite end.

Procedure: Have the students line up into two separate lines. If they are unable to arrange themselves, count the students off using the numbers 1 & 2. When students are lined up, have them go in order. The student must slip into the coffee sack and hop to the end point and back. Each student must go to the end point and back. The first team to complete the task wins.

Materials: Various items that go in trash and recycling (plastic bag wrappers, plastic bottles, clamshells, newspaper, yogurt containers, cereal boxes, used paper plates, plastic bag, egg carton, milk jug, etc.)

Preparation: Designate a starting point by using a cone or string. Set up a recycle bin and recycling bin for each line of students, with trash and recyclables on the floor. Before the relay race begins, go over each item and which bin it belongs in.

Procedure: Have the students line up into two separate lines. If they are unable to arrange themselves, count the students off using the numbers 1 & 2. When students are lined up, have them go in order. The student must run to the other end and place the item in the correct bin. Have an adult/mentor by the bins to make sure the student chooses the right bin.

Assessment

Assessing the student's knowledge with Q & A

Questions	
1. Which of the following are recyclable items: Used paper plates, aluminum cans, plastic bottles, newspaper, paper, bottle caps, plastic bags, milk jugs, cereal boxes.	Answers vary.
2. Do you recycle any of the items we used to play games today? Were all of the items used to play games today things that you can recycle at home?	Answers vary. Yes
3. Did you have fun today? Why is it important to	Kids who exercise are more likely to keep exercising as an adult. Exercise helps kids achieve and maintain a healthy body weight. Regular physical activity helps build and maintain strong, healthy muscles, bones and joints. Exercise aids in the development of important interpersonal skills—this is especially true for participation in team sports. Exercise improves the quantity and quality of sleep. Research shows that exercise promotes improved school attendance and enhances academic performance. Kids who exercise have greater self-esteem and better self-images. Participating in regular physical activity prevents or delays the development of many chronic diseases (e.g., heart disease, diabetes, obesity, hypertension) and promotes health. Children who are active report fewer symptoms of anxiety and depression and a better overall mood. Exercise helps improve motor coordination and enhances the development of various motor performance skills. **(https://www.acefitness.org/updateable/update_display.aspx?pageID=638)**

Books & Resources

http://www.re3.org/React/6.pdf (Recycling activities)
http://www.educationworld.com/a_lesson/03/lp308-02.shtml (Lesson plans)
https://www.acefitness.org/updateable/update_display.aspx?pageID=638 (Top 10 reasons kids should exercise)

Rethink Your Drink

Measure sugar content for popular beverages

Approximate time to complete activity: ~ 45 minutes- 1 hour

Big Idea

Enlighten students on how much sugar they consume for each beverage option.

Learning Objectives

1. To understand what sugar is and how it affects our bodies
2. To design a sugar content board as a class
3. To effectively read a food label

Key Words

Sugar, empty calorie, nutrient, nutrition label, healthy, serving size

Materials

1. A large posterboard
2. Empty drink containers
3. Sugar
4. Small plastic ziplock bags
5. Markers & pens
6. Paper (for labels)
7. Zip Ties or cement glue
8. Measuring spoons/cups

Procedure

1. Begin session with a discussion: What do you think a healthy drink is? Do you know what sugar is? Do you know how to read a nutrition label? What are your favorite drinks? Do you drink water every day?
2. Explain to the class about the “Rethink Your Drink” board. How you are making it and why you are making it.
3. Teach the students how to read the nutrition label. Pass out one container to each student or pairs of students. Have them try to figure out how much sugar is in each container.
4. After everyone has guessed, teach students how to read container and do the math to figure out how much sugar is in each drink.
5. Have students take turns measuring the amount of sugar and pouring that sugar into a ziplock bag.
6. Once each student has successfully measured the amount of sugar, have each student/group make a label for their drink (as shown in the picture above) with the type of drink it is and how many teaspoons or tablespoons are in one container.
7. Zip Tie or glue on each container to a large board. Allow students to attach their ziplock bag and label underneath each container.
8. Hang up in your classroom as a reminder to make healthier drink choices.

Assessment

Assessing the student's knowledge with Q & A

(http://projecthealthyschools.org)

Questions	Answers
1. Some beverages contain empty calories and added sugar. Who knows what this means?	This means that the calories have little to no nutritional value to them. Added sugar is an empty calorie because it provides flavor and energy but doesn't contain any vitamins, minerals, protein, or other nutrient.
2. Why are high amounts of sugar bad for our bodies?	It has no nutrients, causes cavities. Large amounts of sugar gets turned into fat in the liver, contribute to many diseases
3. What are the healthiest drink choices?	Water, milk, and 100% juice (explain how tap water is safe to drink). Encourage students to use a refillable water bottle.
4. How can you use a food label to determine if your drink is healthy?	Do the math to figure out how many teaspoons of sugar are actually in the drink

Books & Resources

https://deptapp08.drexel.edu/nutritioneducation/Website_Materials/FY16%20Curriculum/FY16%20DU%20ERN%20Curriculum%20PDF/MS%20DU%20ERN/4%20MS%20Rethink%20Your%20Drink%20Lesson%20rev%207%2015%20nfs.pdf (Lesson plan pdf)
https://choosemyplate-prod.azureedge.net/sites/default/files/tentips/DGTipsheet19MakeBetterBeverageChoices_0.pdf (Make Better Beverage Choices- Handout)
http://projecthealthyschools.org/images/Making%20Better%20Beverage%20Choices%20Answer%20Key.gif (Beverage worksheet- Handout)
https://youtu.be/Orj7p3KQcyQ (How to read nutrition label)
https://authoritynutrition.com/10-disturbing-reasons-why-sugar-is-bad/ (10 reasons why sugar is bad)

Homemade Sorbet

Have your students include their favorite meals/snacks

Approximate time to complete activity: ~ 30 minutes

Big Idea

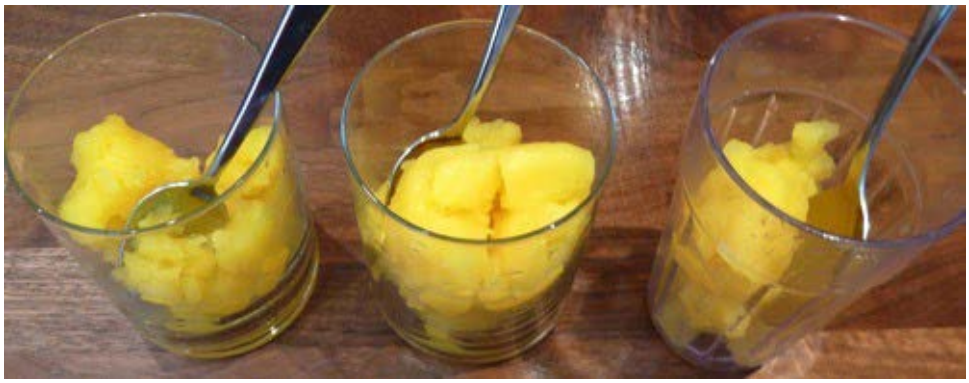
Share with students how fun and easy it is to make your own dairy-free ice cream substitute.

Learning Objectives

1. To understand endothermic reactions
2. To learn how to observe experiments
3. To make sorbet

Key Words

Food science, chemistry, freezing, heat, endothermic reaction



Materials

1. 100% juice
2. Measuring cups/spoons
3. Large plastic ziplock bags
4. Sandwich plastic ziplock bags
5. Ice
6. Salt
7. Water
8. Gloves (optional)

Procedure

1. Pour 1 cup of juice into the sandwich plastic ziplock bag. Squeeze out excess air and seal the bag.
2. Pour 2 cups of ice, 1 cup of water, and 1 cup of salt into the large ziplock bag.
3. Place the bag with juice into the large ziplock bag.
4. Seal the bag and shake vigorously for 5 minutes. If it is too cold to use your bare hands, use a pair of gloves.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Why might sorbet be a better snack than ice cream?	Answers vary.
2. Why does salt make ice melt?	It has more vitamins from the fruit juice and people who are lactose-intolerant or vegan can enjoy it too! Other answers may vary.

Books & Resources

https://www.youtube.com/watch?v=hTcX5LuGIJQ (Sorbet Youtube tutorial)
http://www.navigatingbyjoy.com/2013/04/09/edible-science-with-ice-and-salt/ (Tutorial)
http://www.reachoutmichigan.org/funexperiments/agesubject/lessons/other/una2.html (Ice energy lesson plan)
https://www.scientificamerican.com/article/scrumptious-science-making-ice-cream-in-a-bag/ (Ice cream tutorial)

Foodscrap Stamps

Use your veggie scraps to create fun stamps

Approximate time to complete activity:
~ 30 minutes- 1 hour

Big Idea

Give your veggie scraps a second life when you use them as stamps for an art project!

Learning Objectives

1. To learn how to create stamps out of food scraps
2. To define compost and the importance of composting
3. To determine how to reduce food waste

Key Words

Food waste, food scraps, reuse, compost, landfill

Materials

1. Vegetables: carrot, potato, celery, cucumber, romaine lettuce, okra, turnip, mushroom, brussels sprout
2. Fruit: lemon, apple, blueberries, strawberries, avocado, pear, orange slice, kiwi, tangerine
3. A stamp “holder” (fork, corn on the cob holders, or skewer sticks)
4. Paper
5. Paint
6. Paint Brushes
7. Newspaper/tarp

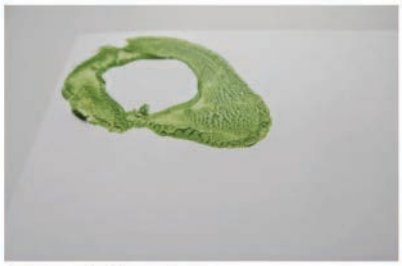
Preparations

Have all the scraps cut and ready for use. For bigger classes, create multiple stamps out of one fruit or veggie to lessen the wait time. Lay out newspapers or a tarp.

Procedure

1. Before getting started on the craft, talk about food scraps and food waste in the U.S.
2. Ask students if they throw any any of the fruit and vegetables that look like the pieces prepared for stamps.
3. Talk about DIY stamps being one of the few ways that students can reduce food waste in their houses.
4. Have students share stamps and decorate their papers.
5. Encourage the students to fill up as much of their paper with stamps or paint.

Stamp Guide

Avocado  homemadeginger.com	**Lemon**  homemadeginger.com	**Blueberries**  homaemadeginger.com
Turnip  ilovetocreateblog.blogspot.com	**Okra**  theimaginationtree.com	**Lettuce**  housingaforest.com
Mushroom  hameyeam.com	**Corn**  hameyeam.com	**Carrot**  ilovetocreateblog.blogspot.com
Celery  craftsy.com	**Bell Pepper**  craftymorning.com	**Broccoli**  laurabethmann.com

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Do you know what food scraps are?	Leftover food pieces.
2. Do you know what it mean to compost? Do you or have you ever composted food scraps?	To compost means to collect food scraps and natural material to create fertilizer.
3. If you are unable to compost, you should try using your food scraps for other things. What are some things you can use them for?	Making stamps, putting in smoothies, using them in baking recipes or stews.
4. If we do not reuse or compost food scraps, where do they end up? How much food do you think reaches the landfill?	Landfill. In 2014 alone, more than 38 million tons of food waste was generated, with only 5.1 percent diverted from landfills and incinerators for composting. EPA estimates that more food reaches landfills and incinerators than any other single material in our everyday trash, constituting 21.6 percent of discarded municipal solid waste. Additionally, the U.S. Department of Agriculture (USDA) reports that Americans wasted over one third of the vegetables and fruit bought in 2010.1 (EPA.GOV)
5. What can you do to reduce food waste in your home?	Answers vary.

Books & Resources

http://craftulate.com/vegetable-stamping/
https://www.epa.gov/sustainable-management-food/sustainable-management-food-basics
(Managing food waste)

Classroom Yoga

Get the class moving with yoga!

Approximate time to complete activity: ~ 1 hour

Big Idea

Rethink your food waste by bringing life to food scraps.

Learning Objectives

1. To learn how roots grow
2. To determine which vegetables, herbs, and fruits can be regrown from food scraps
3. To grow a new vegetable or herb

Key Words

Roots, stem, leaves, grow, herb, transplant, fiber, calories, healthy,

Materials

1. Your choice(s) of vegetable scrap
2. Glass
3. Water
4. Soil
5. Scissors

Procedure

Basil

17apart.com

- Cut off a stem of basil with 3-4 leaves
- Place into a glass of water
- Place in a sunny spot (not too hot)
- Change water every other day
- When root grows to about 2 inches, transplant into bigger pot.

Mint

17apart.com

- Cut a couple of inches from where you can see new growth forming on a larger plant.
- Strip away all but the top leaves.
- Place into a glass of water.
- Change water every other day
- When roots grow to about 2 inches, transplant into bigger pot.

Potato

Features.faithtap.com

- Cut potato into half
- Allow time for each half get 1-2 eyes
- Let pieces sit at room temperature overnight until they are dry to the touch
- Plant about one foot apart in 8 inches of soil

Romaine Lettuce

Housingaforest.com

- Place bottom of romaine lettuce in a bowl with ½ inch of water
- Change water every day
- Keep bowl in a sunny area
- Once lettuce sprouts, plant hearts in the garden

Celery

healthybodynow.net

- Place celery stalks in a small bowl with water, stalks facing upright
- Place the bowl in a sunny area
- Change water every other day
- After 5-7 days move the base to planter or garden. Cover with soil up to leaf tips.

Green Onion

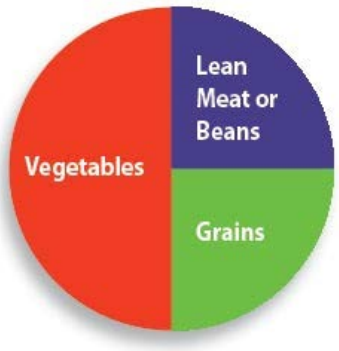
Montanasolarcreations.com

- Cut the green onion 2 inches from the stem
- Place roots in ½ inch of water
- Place in a sunny area
- Change the water every other day
- Transfer to soil after 5-7 days


day 1
day 2
day 3 - shoots!
day 4
day 5
day 6
day 7
Day 8
day 9

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Have you ever grown your own food before?	Answers Vary
2. What is essential to healthy growing food and vegetables?	Sun, water, healthy soil.
3. Why does everyone need to eat vegetables every day?	Fiber: Vegetables provide your body with fiber which help you stay full longer Low Calories Vitamins & Minerals: Help you feel healthy and energized Natural: Vegetables are nature's treat
4. Draw a picture of your dinner plant. How much of your plate should be filled with vegetables, meat/beans, and grains?	

Books & Resources

https://foodrevolution.org/blog/reduce-food-waste-regrow-from-scraps/?utm_source=facebook&utm_medium=social&utm_campaign=frn_blog_social (Infographic)
https://www.buzzfeed.com/caroltan/heres-how-to-turn-your-vegetable-scraps-into-vegetables-agai?utm_term=.xqnYl42pe#.lilwoAVnz (Buzzfeed Article & Video)
https://www.buzzfeed.com/jesseszewczyk/16-food-scraps-that-you-can-regrow?utm_term=.oyKonam67#.byKKMBm2o (Buzzfeed Article: 16 food scraps)

Summer Smoothies

Make fruit more fun with a blender and a straw

Approximate time to complete activity: ~ 30- 45 minutes

Big Idea

Get kids excited about healthy snacks and being creative in the kitchen.

Learning Objectives

1. To learn the health benefits of consuming fruit
2. To discover flavor combinations that you didn't know you enjoyed

Key Words

Food science, healthy eating, recipes

Materials:

1. Blender
2. Measuring cups and spoons
3. Cups

Sunshine Smoothie

½ cup baby carrots
½ cup orange juice
1 cup frozen pineapple chunks
¾ cup of plain greek yogurt
½ cup of frozen mango chunks
1 tablespoon of honey

Banana Split Smoothie

1 frozen banana
2 cups of frozen strawberries
¾ cup of plain greek yogurt
1 cup of lowfat chocolate milk

Berry Blast Smoothie

2 cups of loosely packed spinach (about 2 handfuls)
2 cups of frozen berries
1 cup of plain greek yogurt
1 cup of lowfat milk
1 tablespoon of honey

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. What was your favorite smoothie?	Answers Vary
2. What makes this a healthy snack?	The ingredients are nutritionally dense. They have lots of vitamins, antioxidants, and fiber.

Books & Resources

http://www.sheknows.com/food-and-recipes/articles/977849/healthy-smoothies-kids-will-actually-enjoy (Smoothies for kids)

Culture

WWW.TRASHFORPEACE.ORG

DIY Dreamcatcher

Learn about Native American cultures and their traditions

Approximate time to complete activity: ~1 hour

Big Idea

Make a dreamcatcher out of repurposed materials while learning about indigenous cultures and the importance of dreams.

Learning Objectives

1. To learn about Native American traditions and what was believed about the dream catcher
2. To learn the meaning behind objects used for the dream catcher
3. To review Native American symbols and what they mean

Key Words

Native American, culture, tradition, materials, legend, history

Materials

1. Paper plates/cardboard/outside part of a plastic lid
2. String
3. Hole Puncher
4. Crayons, markers, colored pencils, stickers
5. Beads
6. Feathers
7. Scissors
8. Glue/tape

Preparation

Optional: Cut out the round cardboard/paper plate

Procedure

1. Cut out the round if it was not done already as part of the prep.
2. Punch holes around the circle to have places to string through the thread.
3. Decorate the round circle using markers, crayons, stickers, etc.
4. String one long piece of string through all of the holes. Have students place beads on the woven center.
5. Use 3 other small pieces of string to use on the bottom. String beads through those holes.
6. Use either glue or tape to attach feather onto the ends of the 3 strings.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Where did dream catchers originate from and what is their purpose?	Dream catchers originated from Native American culture, first created by the Ojibway tribe. Dream catchers were believed to trap bad dreams that are floating in the air while you are sleeping. Both good and bad dreams can get caught into the web. The good dreams would slide down the feather to the child's head lying below it. The bad dreams would get caught without knowing where to go and would be destroyed by the morning light.
2. Why are beads and feathers often used when creating dream catchers?	Bead: One bead in the center represents a spider on the web. A few beads scattered across the web may represent good dreams that have been caught. Feather: The feather symbolizes breath or air, used to symbolize the value of fresh air

Books & Resources

https://www.scribd.com/document/209441139/Dream-Catcher-Lesson-Plan (Lesson plan)
http://www.dream-catchers.org/
http://www.nativeamericanvault.com/legend-of-the-dreamcatcher/
https://s-media-cache-ak0.pinimg.com/originals/47/cb/21/47cb2132b665e5686c491732541801a3.jpg (Native American symbols)

Plarn Carpet

Reuse plastic bags to create a carpet for your classroom

Approximate time to complete activity: ~ 1- 2 hours

Big Idea

Collect your plastic bags to create a beautiful rug for your community space.

Learning Objectives

1. To learn about the origins of textile weaving
2. To collaborate as a team to create a plarn rug
3. To identify the importance of reuse for items that do not biodegrade

Key Words

Culture, history, origins, textile, biodegrade, reuse

Materials

1. Pallet
2. Screws
3. Screwdriver
4. String
5. Hammer
6. Scissors
7. Plastic bags

Preparations

Clear one side of the pallet, except the two on each end as shown in the picture below. Drill in the screws on each end of the pallet- 30 screws on each side with 4mm gap.

Procedure

1. Hold the bag sideways and fold each bag into itself two/three times and cut through it, every two inches. This should leave you with a few huge rings for every bag.
2. Intertwine two/three “rings” of plastic, so that it creates a long chain (as shown in the youtube video below).
3. Make sure your plastic chain is long enough to be attached to each end of the pallet
4. Keep attaching the plastic chains until each pair of screws has a chain of bags connected to it.
5. After that is complete, use the chains to weave in and out of the chains going Horizontally. Once you have reached the end of one chain, connect it to another chain of plastic bags the same way you created the chains. Pull the new chain very tightly, to make a small knot.

6. Once you have successfully completed your first horizontally weaved row, push down the plastic chain so it is packed in tightly. Before starting your next row, leave a small loop hanging out, over the pallet. Continue weaving in and out as before.
7. Have someone hold the loop as you continue to weave.

History of Weaving (wikipedia.org/wiki/Weaving)

Weaving began near 27,000 years ago in the Paleolithic era. The oldest known textiles found in the Americas was found in Peru and made from plants.

Middle East: Flax was often used for weaving. The weavers were often children or slaves. Americas: In South America, they wove either cotton or alpaca wool, depending on their location. Andean textile weavings were of practical, symbolic, religious, and ceremonial importance and used as currency, tribute, and as a determinant of social class and rank. Some of their techniques are still used today.

China & East Asia: In China, they wove out of silk from silkworm cocoons. The trend of silk weaving spread to Korea and Japan.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. How many years ago was plastic made?	More than 100 years ago
2. How many times a day do you use something made from plastic? Do you recycle it?	~ Answers Vary
3. Do you know what biodegradable means? Do plastic bags biodegrade?	Biodegradable: capable of being decomposed by bacteria or other living organisms. They do not decompose.
4. How can you reduce the amount of plastic that you use every day?	Reusable water bottle. Lunch bag. Reusable fork. Cloth napkins. Foil.

Books & Resources

https://youtu.be/pTz3i7pYvWk (Detailed youtube tutorial)
https://en.wikipedia.org/wiki/Weaving (Weaving and its origins)
https://www.amazon.com/One-Plastic-Bag-Recycling-Millbrook/dp/1467716081/ref=sr_1_1?ie=UTF8&qid=1495572323&sr=8-1&keywords=one+plastic+bag (Book: One Plastic Bag)
http://oneplasticbag.com/wp-content/uploads/2014/10/Resource_for_Teachers_Dangers_of_Plastic-2.pdf (Plastic bag worksheet)

Immigrant Post Card

Welcome new families to your hometown

Approximate time to complete activity: ~ 20- 30 minutes

Big Idea

Give students an opportunity to welcome a new immigrant family.

Learning Objectives

1. To learn the importance of supporting new immigrants and refugees
2. To design a postcard
3. To discover ways they can help make their city a safer and more welcoming place

Key Words

Immigrant, refugee, country, postcard, inclusion,

Materials

1. Paper
2. Ruler
3. Scissors
4. Markers, crayons, colored pencils

Preparations

Cut out paper 4” x 6” to create the postcards.

Procedure

1. Introduce the concept of immigrants and refugees to their students if they do not know what this means.
2. Explain the importance of including and supporting new families in our country.
3. Ask the kids how they can help create a safe and including space.
4. Pass out the postcards for students to decorate.
5. Have them use simple words because new families might not know English yet.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Who remembers what an immigrant or refugee is? What is the difference?	Refugee: a person who has been forced to leave their country in order to escape war, persecution, or natural disaster. Immigrant:a person who comes to live permanently in a foreign country.
2. Why is it important to make new families feel welcome in the United States?	Everybody is invited to live in the U.S.A. and it is nice to welcome new people. Do you welcome new people in your classes or in your apartment? It's like the same thing!
3. What can you do to make your city more welcoming and safe?	Don't judge people who look different than you or speak another language than you. Do you speak another language with your family?

Books & Resources

http://www.butterflyboxespdx.org/get-crafty.html (Portland-based organization)

Sugar Skulls

Learn about the Mexican tradition of remembering loved ones

Approximate time to complete activity: ~1 hour of activity, 8 hours of waiting

Big Idea

Make a decorative sugar skull while learning about a tradition of remembrance.

Learning Objectives

1. To practice measuring and using ratios
2. To learn about Day of the Dead
3. To reflect on our own ancestry and the importance of remembering

Key Words

Dia de los Muertos, sugar skull, tradition, Mexico, death, holiday, remembrance, ancestors

craftandactivities4elderly.blogspot.co.uk

Materials:

1. Skull-shaped mold
2. Granulated sugar
3. Meringue powder
4. Mixing bowl
5. Extra newspapers or a tablecloth that can get dirty
6. Pieces of cardboard for drying skulls on
7. Water
8. Kitchen measuring supplies
9. Paint and brushes

Preparation:

Lay out newspaper or tablecloth to mitigate the sticky, sugary mess. Measure a ratio of 1 cup granulated sugar to 1 teaspoon of meringue powder; scale up as necessary.

Procedure:

1. Thoroughly mix granulated sugar and meringue powder in the mixing bowl.
2. Add 1 teaspoon of water for each cup of sugar.
3. Continue mixing by hand until it feels like wet sand.
4. Pack mixture tightly into a skull mold, scraping away extra mixture with a flat surface.
5. Place piece of cardboard over back of mold and quickly flip it, keeping mold in place.
6. Carefully lift off mold and let the sugar skull dry on the cardboard for at least 8 hours.
7. Decorate with paints.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Why do you think this is not a widely celebrated American or Canadian holiday?	Dia de los Muertos has its origins in Aztec traditions honoring the dead. The Aztec Empire's influence extended throughout present-day Mexico and Central America, while few Native Americans of the present-day U.S. shared Aztec traditions.
2. Masks and other decorations are only halfway decorated with calacas and calderas (skeletons and skulls). Do you know why?	Dia de los Muertos celebrates death as a part of the human experience: every living thing will eventually die. The half-decorated calacas and calaveras recognize this duality.
3. In many parts of Mexico, participants in Dia de los Muertos festivities wear shells or other noisemakers on their clothing and jewelry. Why?	The dead are a part of the community, but invisible to the living. Shells and noisemakers will wake the dead from their sleep, and keep them close during the festivities. Many of the dead were also musicians or enjoyed music and dancing.

Books & Resources

https://www.mexicansugarskull.com/support/dodhistory.html (History)
https://www.mexicansugarskull.com/sugar_skulls/instructions.html (Instructions)
https://youtu.be/Rt146BqVMCg (Video tutorial)

Map of our Community

Learn about maps by making them personal

Approximate time to complete activity: ~1-2 hours

Big Idea

Share stories about places that matter to you while learning about maps and creating your own.

Learning Objectives

1. To understand the parts of a map and how to use them
2. To reflect on the importance of places in our lives
3. To visualize and map a location

Key Words

Map, culture, place, key, legend, scale, local, city

Materials

1. A map of your city
2. A map of your state/province, country, and world
3. Cork board that can fit the city map
4. Crayons, markers, colored pencils, stickers, pens
5. Paper
6. thumbtacks/pushpins

Preparation

1. Secure city map to cork board.
2. Draw a quick, imprecise map of the room or building you are in.

Procedure:

1. Display all the maps other than your crude drawing and begin an open-ended discussion on what the students notice about them.
2. Introduce the cardinal directions, key, and scale as necessary.
3. Ask students to find where you are on the maps, then put a pin on that location on the city map. Label it.
4. Have students come up with stories, experiences, and locations that are important to them. They should write these down on a small piece of paper and pin them to the location on the city map that is most relevant.
5. Leave the city map displayed in the classroom/community center, encouraging students to add to it.
6. Display your hand-drawn map and mention that any place can be mapped with varying degrees of precision.
7. Pass out the drawing supplies and encourage students to make a map of somewhere important to them.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. What do you call the part of a map that tells you what the symbols mean?	The legend or key.
2. Which directions are maps typically oriented?	Usually North is on top, South on bottom, East to the right, and West to the left. This is not always the case and you should check the compass rose to be sure.
3. What place on the map is most important to you?	Answers will vary.
4. Are there places that you strongly associate with a particular memory?	Answers will vary.

Books & Resources

https://www.nationalgeographic.org/education/map-skills-elementary-students/ (map activities)
https://www.worldmapsonline.com/LESSON-PLANS/table-of-contents-lesson-plans.htm (map and globe lesson plan)
https://www.youtube.com/watch?v=dp8VOG8Cgag (an introductory kids' video on maps)

The Single Story

Moving beyond stereotypes in our stories and self-image

Approximate time to complete activity: ~ 1 hour and a half

Big Idea

Break down stereotypes and learn about each other with an impactful video and creative storytelling.

Learning Objectives

1. To learn how stereotypes spread despite good intention
2. To reflect on our less visible qualities
3. To use stories as a method of self-expression

Key Words

Stories, TED, Chimamanda Adichie, stereotypes, Nigeria, self-reflection

Materials

1. Computer or other device that can access the internet and show video with sound
2. Paper
3. Pencils, pens, crayons, markers, colored pencils, stickers

Preparations

Load this video: **https://youtu.be/D9Ihs241zeg**

Procedure

1. Ask students to list words different people in their lives use to describe them (e.g. teachers, parents/guardians, friends).
2. Ask students to list words they use to describe themselves.
3. Ask students to describe how they would like to be seen by others and if there are any big differences between their answers to the three questions.
4. Play “The Danger of a Single Story,” following up with open-ended discussion about what we learned and trying to see people for their whole selves.
5. Pass out writing and drawing supplies.
6. Have students write or draw a story showing a part of themselves they wish would be recognized more.
7. Students then share their stories with each other.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Where is the speaker from?	Chimamanda Adichie grew up in Nigeria, a country on the continent of Africa. It is worth repeating that Africa is not a country
2. What is Chimamanda Adichie's main critique of stereotypes?	They show a very limited perspective. While they may not always be incorrect, they are always incomplete and focusing on one trait or a select few gives a distorted view of someone that can have drastic negative effects on their wellbeing.
3. What are your unrecognized qualities you wish would be more visible?	Answers will vary.

Books & Resources

https://kidworldcitizen.org/the-danger-of-a-single-story-and-teaching-kids-to-avoid-stereotypes/
https://www.thepineappleprojectla.com/single-post/2017/07/24/The-Danger-of-a-Single-Story-Lesson-Plan-Extension-Ideas
https://www.rethinkingschools.org/articles/the-danger-of-a-single-story-writing-essays-about-our-lives

Holidays

WWW.TRASHFORPEACE.ORG

DIY Dreamcatcher

Learn about Native American cultures and their traditions

Approximate time to complete activity: ~1 hour

Big Idea

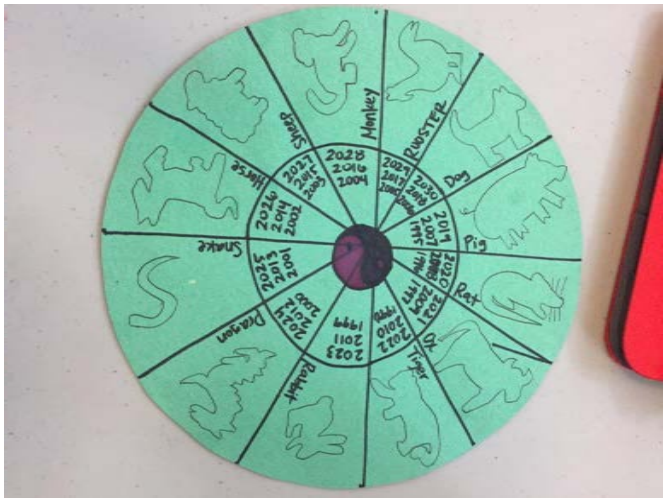
Make a dreamcatcher out of repurposed materials while learning about indigenous cultures and the importance of dreams.

Learning Objectives

1. To learn about Native American traditions and what was believed about the dream catcher
2. To learn the meaning behind objects used for the dream catcher
3. To review Native American symbols and what they mean

Key Words

Native American, culture, tradition, materials, legend, history



Materials

1. Paper plates or construction paper
2. Markers, crayons, colored pencils
3. Scissors
4. Animals stencils (optional)
5. Rulers

Preparation

If you are unable to get paper plates consider pre-cutting circles the size of a paper plate for each student in your class.

Procedure

1. Begin the class by showing a youtube video discussing Chinese New Year or talking about Chinese New Year.
2. Pass out paper plates/construction paper and rulers to the students.
3. Explain how the Chinese Zodiac chart has 12 sections and have the students use a ruler to draw two lines perpendicular to one another, creating a huge cross. Continue to fill in the circle with lines so that there are 12 different sections.
4.It is very important to draw the animals in the correct order. Have the students go clockwise, drawing in the animals or outlining animal stencils.
5. After all the animals have been drawn in, include the years of each animal.
6. Lastly, draw a yin yang symbol in the center of the circle.
7. Let students go around the classroom figuring out which animal they are while asking each other which year they were born in.
8. After every student knows which animal they are according to the zodiac calendar, read out the description of each animal.

Brief overview of Chinese New Years

In Chinese culture, it is the most important time of the year filled with delicious food, fireworks, and good fortune. A long time ago in China there was a big scary nasty beast named Nian (whose name means Year). Most of the time he lived in the wilderness but when there was a new moon in sight, he would sneak off to the city and scare everyone in sight. People dreaded the new moon for many many years. Until the wise men taught them the 3 things Nian was afraid of: loud noises, fire, and the color red. The next time Nian came, they all banged hard on drums, lit every firecracker they had, and wore the color red from head to toe. Nyen ran far away and never came back. Ever since then, people celebrated whenever a new moon was in sight. That celebration became a 15-day festival with family and food, known as Chinese New Year.

Every Chinese New Year is represented by one of 12 animals. According to legend a long time ago in China, Jade Emperor held a giant race the first 12 animals to reach his palace would be the winners and they would each get a year named after them in their honor.

Characteristics of Chinese Zodiac animals (http://gbtimes.com)	
Rat	People born in the year of the Rat are imaginative, charming and very generous towards their loved ones. Rats are said to be aggressive, ambitious, distrustful, power-seeking and honest. They have a tendency to be hot-tempered and overly critical. The most suitable occupations for Rats are salesperson, critic or writer.
Ox	Oxen are perfect leaders and parents. They are also considered honest, inspirational, carefree and conservative people. Oxen are strong individualists, who can at times be very persistent and even stubborn. The best careers for Oxen are surgeon, general or hairdresser.
Tigers	Tigers are generally sensitive, aggressive, unpredictable, charming, emotional and brave. They like taking risks and leading a carefree life. Tigers are good leaders, explorers, car racers or bullfighters.
Rabbit	People born in the year of the Rabbit are friendly, talented and conscientious. Rabbits appreciate tranquility and security, and have a very pleasant disposition. Rabbits may have a tendency to be too emotional and superficial. They avoid conflicts and are afraid of becoming deeply involved in a relationship. Rabbits are conservative and careful in their actions, and they do not like taking risks, which makes them excellent business people. Other suitable professions are lawyer, diplomat or actor.
Dragons	Dragons are often intelligent, talented, domineering, loud, cocky and capricious, but also popular and successful. They are enthusiastic people who are full of life. Dragons often seem outgoing, but are in reality very tender-hearted. The best professions for Dragons are artist, priest, politician or leader.
Snake	People born under the Snake sign are witty, passionate, determined, romantic, intense, charming and wise, but also vain. Snake women are often physically attractive. Snakes tend to listen to their intuition and make a lot of money, but also try to be thrifty. Best professions are teacher, philosopher, writer or psychiatrist. The most compatible matches for Snakes are the Rooster or the Ox. Pigs are not ideal partners for Snakes.
Horse	Horses are hard-working, intelligent, friendly, positive and popular, but impatient. Horses often tend to consider themselves better that other and they should pay attention to not becoming overly egoistic. The best occupations for Horses are adventurer, poet, politician, scientist.
Sheep	People born in the year of the Goat are creative, artistic, passionate, elegant, warm-hearted, charming and honest. On the flip side they can also be pessimistic, shy, unorganized and fragile. They are easy-going, easy to complain and susceptible to stress, but also good problem solvers. The best occupations for Goats are actor and gardener.

Characteristics of Chinese Zodiac animals (http://gbtimes.com)	
Monkey	Monkey people are intelligent, resourceful and entertaining, but also unpredictable and easily discouraged. Thanks to their extraordinary and magnetic personalities, Monkeys have a large circle of friends and they are well-liked by everyone. But are they reliable? Monkeys can sometimes be opportunistic and distrusting of others. Monkeys can succeed in any profession.
Rooster	People born in the year of the Rooster are hard-working, courageous, smart, arrogant, reckless, egoistic and eccentric. They have a hunger for knowledge, are enthusiastic about their work and are strong decision-makers. Roosters are skillful in their work and attentive to details, so much so that they can be considered boastful by others. The best professions for Roosters are restaurant manager, writer, soldier or world-traveler.
Dog	Dogs are calm, intelligent, honest, generous, persistent, loyal and true to those they hold dear. Dogs are good listeners, enthusiastic, but also cynical and they can easily be overcome by anxiety. Dogs are constant worriers, are sharp-tongued and have a tendency to find flaws in everything, which makes life sometimes hard for Dogs. But, Dogs are successful people by birthright. Dogs make excellent business people, activists, teachers and even secret agents.
Pig	People born in the year of the Pig are generally honest, reliable, devoted, tolerant, shy, affectionate, kind and impulsive, but they have a short fuse! Pigs make the perfect partners and are intellectual and very persistent when trying to reach a goal. On the other hand, they can be very naive. Pigs have a hunger for knowledge that helps pave their way to success, but their materialistic ambitions often make them frustrated. Pigs can devote entire their lives to a good cause. Pigs are successful in the fields of finance, entertainment or law.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. What sign on the zodiac did you get? What characteristic traits does that mean for you?	~ Answers Vary
2. Do you find your zodiac description to be accurate?	~ Answers Vary

Books & Resources

http://www.artic.edu/aic/collections/citi/resources/Rsrc_001877.pdf (Lesson Plan: Signs of the zodiac)
https://youtu.be/_u-R-alq3_E (Youtube video: The story of Chinese New Year)
http://www.k-international.com/wp-content/uploads/2016/01/photodune-8227962-chinese-new-year-s.jpg (Name of each zodiac animal written in Chinese)

Valentines Day Card

Reuse an old box for a DIY Valentine's Day Card

Approximate time to complete activity: ~1 hour

Big Idea

Celebrate a day of loving by also loving the environment and making a card out of reused boxes from cereal, granola bars, or any other food products.

Learning Objectives

1. To design a Valentine's Day card using reclaimed materials
2. To determine other ways to reuse boxes
3. To discover the history behind Valentine's Day

Key Words

Reuse, repurpose, Rome, emperor, love, waste

Materials

1. Cardboard box
2. Yarn/string
3. Scissors
4. Hole Puncher
5. Construction paper
6. Glue
7. Markers/crayons

Preparation

If desired, you can pre-cut the "cards" out of the boxes.

Procedure

1. Pass out boxes and scissors to the students.
2. Have the students open the bottom of the box (if needed) and cut the box open. Remove any extra pieces.
3. Cut the box into half.
4. Fold the box into half.
5. Cut off the flap (the top and bottom of the box).
6. Draw a big heart on the card. Be sure it is big enough so the hole puncher is able to reach the desired spots to punch holes.
7. Fold the card in half to punch the holes near the center of the heart.
8. Have students cut out a long piece of string/yarn.
9. Put the string through a hole and back up through the whole next to it and make sure that both strings are even, like shoelaces!
10. Weave the string or yarn in and out of the holes to create a pattern of your choice
11. When you are done, use both strings to tie a knot. Tie as many knots as you need.
12. Once the heart is complete. Have students cut out a piece of construction paper to glue into the card to cover any logo or nutrition facts.
13. Allow the students time to decorate the inside of their card.

Brief overview of Valentine's Day
Every February 14, across the United States and in other places around the world, candy, flowers and gifts are exchanged between loved ones, all in the name of St. Valentine. But who is this mysterious saint, and where did these traditions come from?

Show your class this youtube video: Animated history of Valentine's Day (1:31). "Valentine's Day and its interesting history. St. Valentine lost his life to save lovers from the tyranny of the king."
https://youtu.be/sHmVFJ3QlPw

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Do you reuse boxes at home? Do you recycle them?	Answers vary.
2. Why is it important to reuse boxes?	Paper cardboard is the biggest component in anyone's trash. In one year, we produce 24.1 million tons of discarded paper cardboard.
3. Did you learn anything new about Valentine's Day?	Answers vary.

Books & Resources
https://www.youtube.com/watch?v=U4sn7TAQCOE&t=10s (Trash for Peace youtube tutorial)
https://youtu.be/sHmVFJ3QlPw (History of Valentine's Day)

Cesar Chavez Day

DIY personal message magnets

Approximate time to complete activity: ~ 30- 40 minutes

Big Idea

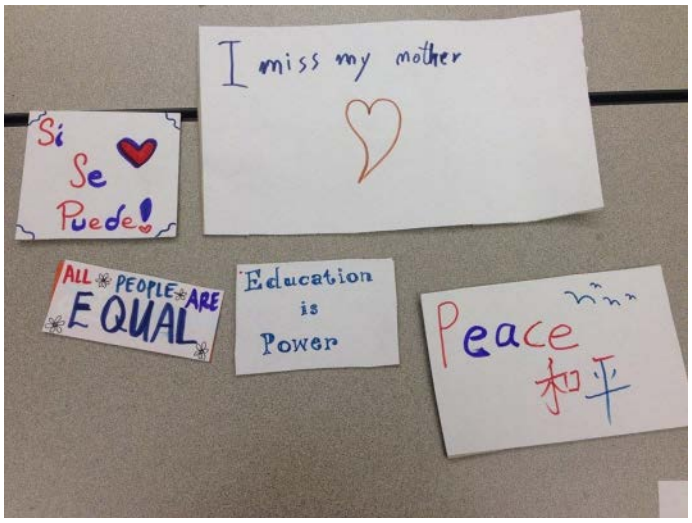
Introduce students to Cesar Chavez and the First Amendment.

Learning Objectives

1. To learn about Cesar Chavez and the meaning behind Cesar Chavez Day
2. To determine the meaning behind the First Amendment
3. To create a message magnet

Key Words

Reuse, repurpose, first amendment, freedom of speech



Materials

1. Cardboard boxes (cereal, cracker, cookies, etc.)
2. Construction paper
3. Scissors
4. Glue
5. Magnet tape

Procedure

1. Play an educational video discussing who Cesar Chavez is and why he is an important leader in history.
2. Ask the students if they know what the First Amendment is. Explain what it is after people have guessed.
3. Pass out paper and markers and allow students to create their own message for their magnet.
4. After they have decided how big the want their message to be, they can cut out the size and shape.
5. Trace that paper onto a piece of cardboard. Cut out the cardboard so it is the same size as the paper.
6. Glue the paper onto the cardboard.
7. Apply the magnet tape on the back of the magnet.

Brief overview of Cesar Chavez Day

Mexican-American Cesar Chavez (1927-1993) was a prominent union leader and labor organizer. Hardened by his early experience as a migrant worker, Chavez founded the National Farm Workers Association in 1962. His union joined with the Agricultural Workers Organizing Committee in its first strike against grape growers in California, and the two organizations later merged to become the United Farm Workers. Stressing nonviolent methods, Chavez drew attention for his causes via boycotts, marches and hunger strikes. Despite conflicts with the Teamsters union and legal barriers, he was able to secure raises and improve conditions for farm workers in California, Texas, Arizona and Florida.

His introduction to labor organizing began in 1952. Within a few years Chavez had become national director, but in 1962 resigned to devote his energies to organizing a union for farm workers. A major turning point came in September 1965 when the fledgling Farm Workers Association voted to join a strike that had been initiated by Filipino farm workers in Delano's grape fields. Within months Chavez and his union became nationally known. Chavez's drawing on the imagery of the civil rights movement, his insistence on nonviolence, his reliance on volunteers from urban universities and religious organizations, his alliance with organized labor, and his use of mass mobilizing techniques such as a famous march on Sacramento in 1966 brought the grape strike and consumer boycott into the national consciousness. The boycott in particular was responsible for pressuring the growers to recognize the United Farm Workers (ufw; renamed after the union joined the afl-cio). The first contracts were signed in 1966, but were followed by more years of strife. In 1968 Chavez went on a fast for twenty-five days to protest the increasing advocacy of violence within the union. Victory came finally on July 29, 1970, when twenty-six Delano growers formally signed contracts recognizing the ufw and bringing peace to the vineyards.

After 1976 Chavez led the union through a major reorganization, intended to improve efficiency and outreach to the public. In 1984 in response to the grape industry's refusal to control the use of pesticides on its crops, Chavez inaugurated an international boycott of table grapes.

For thirty years Chavez tenaciously devoted himself to the problems of some of the poorest workers in America. The movement he inspired succeeded in raising salaries and improving working conditions for farm workers in California, Texas, Arizona, and Florida.
(history.com/topics/cesar-chavez)

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. What is the First Amendment?	Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances. (constituteproject.org)
2. How did Cesar Chavez exercise the First Amendment? Why did he feel the need to do that?	He organized protests and strikes to fight for farm workers' rights. Farm workers were not being treated fairly and Cesar began giving speeches and leading marches.
3. Why did we use cereal boxes and cracker boxes instead of buying cardboard for our magnets? If we didn't reuse them today, which bin would you have thrown them in?	We used old boxes to reuse them instead of throwing them into the trash. The recycle bin.

Books & Resources

https://youtu.be/Bu_8d70selY (Informational video about Cesar Chavez)

Papel Picado

Traditional Mexican art of paper cutting for ceremonies

Approximate time to complete activity:
~ 1 hour

Big Idea

Introduce this craft around the end of October to discuss the Mexican Holiday, Dia de los Muertos.

Learning Objectives

1. To create a collective banner using everybody's tissue paper
2. To learn about the Mexican ritual of honoring the dead.
3. To discover where South America lies in relation to North America

Key Words

Reuse, repurpose, Latin ritual, America, Aztec tradition, indigenous

Materials

1. Colorful tissue paper
2. Markers
3. Scissors
4. String/twine
5. Tape
6. Templates (optional)

Procedure

1. Allow the students to choose which color tissue paper they would like.
2. Instruct the students to fold it as described in this youtube video: Fold it in half, fold it in half again, fold the folded corner again as a diagonal, fold diagonal again (https://www.youtube.com/watch?v=Lo5nkPbAcMc)
3. After it is folded correctly, the students can freely cut out shapes along the folded edge.
4. Once everybody has finished, you can tape the tissue paper onto the string or twine by folded the top of the tissue paper over the string. Do this until all of the papers are taped onto the string.

Brief overview of Dia de los Muertos

Dia de los Muertos (Day of the Dead), is a two day festival that originated in Mexico which takes place on November 1st and 2nd. It is currently celebrated within Central America, South America, and areas in the U.S. Dia de los Muertos is a holiday for remembering and honoring loved ones who have passed. During this time it is believed that the deceased return to their earthly homes to visit and rejoice with their loved ones. Common ways of celebrating Dia de los Muertos include: creating altars, decorating gravesites, setting up offerings, holding all-night vigils, telling stories, making and exchanging sugar skulls, and playing music. **(https://en.wikipedia.org/wiki/Day_of_the_Dead)**

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Why do you think this is not a widely celebrated American or Canadian holiday?	Dia de los Muertos has its origins in Aztec traditions honoring the dead. The Aztec Empire's influence extended throughout present-day Mexico and Central America, while few Native Americans of the present-day U.S. shared Aztec traditions.
2. Masks and other decorations are only halfway decorated with calacas and calderas (skeletons and skulls). Do you know why?	Dia de los Muertos celebrates death as a part of the human experience: every living thing will eventually die. The half-decorated calacas and calaveras recognize this duality.
3. In many parts of Mexico, participants in Dia de los Muertos festivities wear shells or other noisemakers on their clothing and jewelry. Why?	The dead are a part of the community, but invisible to the living. Shells and noisemakers will wake the dead from their sleep, and keep them close during the festivities. Many of the dead were also musicians or enjoyed music and dancing.

Books & Resources

http://pwcs-tyleres.ss9.sharpschool.com/common/pages/DisplayFile.aspx?itemId=1113615
(Design methods & templates)
http://www.art-is-fun.com/day-of-the-dead-facts/
https://laii.unm.edu/outreach/common/lesson-plans/dia-de-los-muertos/complete-guide.pdf

Thanksgiving Trees

What are you thankful for?

Approximate time to complete activity: ~ 30- 45 minutes

Big Idea

Create leaves of thankfulness after you trace your hand.

Learning Objectives

1. To learn how to show appreciation for your family and things in your life
2. To discover the importance of using paper
3. To define the importance of trees

Key Words

Reuse, repurpose, reclaim, thankful, thanksgiving, grateful

Materials

1. Paper
2. Markers
3. Crayons

Procedure

Reuse the back side of old paper as a form of reusing paper

1. Trace your hand with a marker
2. Design your hand is if it is a tree, creating leaves on the ends of each finger.
3. Inside of each leaf, write words, draw pictures, glue pictures from magazines/newspapers.
4. Have each student present to the class when they are all finished.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. What does Thanksgiving mean to you? Why is it important to be thankful?	Answers vary.
2. Are you thankful for trees? Who knows what trees provide for us?	Shade, oxygen, paper, wood, and fruit.
3. Why is it important to reuse paper and wood?	It is important to reuse what trees have provided for us so we can prevent cutting down more trees than we need.

DIY Gift Wrap

Use paper bags to create customized gift wrap

Approximate time to complete activity: ~ 30- 45 minutes

Big Idea

Reuse paper bags to create personalized gift wrap and reduce waste.

Learning Objectives

1. To learn how paper is made and why it's important not to waste paper
2. To identify multiple different ways to reuse shopping bags
3. To create wrapping paper

Key Words

Reuse, repurpose, reclaim, waste, landfill, recycle

Materials

1. Paper bags
2. Scissors
3. Markers
4. Paint & paint brushes

Preparations

If the students are too young to cut out their own sheet using a bag, prepare long sheets for them.

Procedure

1. Tear open the bottom of the bag.
2. Make sure the bottom is completely open without any folds.
3. Cut straight up so that the bag becomes one huge sheet of paper.
4. Cut off any edges with tears.
5. Remove bag handles.
6. Decorate with words, images, or patterns.

Assessment

Assessing the student's knowledge with Q & A

Questions	Answers
1. Does anyone know where paper comes from?	Consider showing video if nobody knows that paper comes from trees.
2. Why is it important not to waste paper?	It is important to preserve natural resources and not use more paper than we need because the more paper you waste, the more trees need to be cut down.
3. What are some other ways we can reuse shopping bags other than wrapping paper?	Paper airplanes, homemade cards, comic books, drawing

Books & Resources

https://youtu.be/uA56TLfEE9k (Youtube video: Where does paper come from?)
http://www.paperbecause.com/paper-is-sustainable/paper-truth-or-fiction (Truth or fiction tree quiz)
https://www.hunker.com/12358415/which-trees-are-used-to-make-paper (Which trees are used to make paper)

Additional hands-on activities can be found at the following sites:

https://www.extension.iastate.edu/clayton/sites/www.extension.iastate.edu/files/clayton/QuickandcheapSTEMactivities.pdf

https://pbskids.org/zoom/activities/sci/

http://leftbraincraftbrain.com/28-days-hands-on-stem-activities-kids/

Trash for Peace Activity Book

WWW.TRASHFORPEACE.ORG