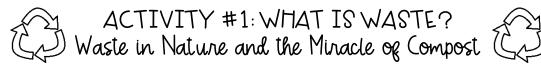


WASTE AND OUR WORLD By Megan's Creative Classroom

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2



Materials Needed: KWL Chart (page 4) or <u>Google Doc Version</u>; Kahoot: <u>What is Waste?</u>; Research Assignment and Organizer (page 5); Research QR Code Cards (page 6); Report Paper (page 7); Report Rubric (page 8) <u>Research Assignment Google Doc</u>; <u>Research Rubric Google Doc</u>

Introduce:

This lesson is an introduction to waste. Students will explore the meaning of the word and think about what they know. A KWL chart is included on page 4 but is also available as a <u>Google Doc</u>. I've included two options so that you can use them in a way that works best for your class. You may want to do the whole KWL chart on the Google Doc and collect ideas as a class. Other options are to use it as a guiding document and have students complete a paper copy or even share it on Google Classroom and have students complete it throughout the unit and hand in as an assignment. KWL charts give a deeper insight into what students understand and on what areas you will focus as you explore the unit.

The second half of this lesson focuses on plant and animal waste. Waste in nature is much different than human waste. Students will explore a few websites to gather information and write a report on compost or recycling in nature (pages 5–8).

Whole Group (KWL):

The KWL assessment is very valuable information for you as a teacher. It gives you an idea of how much your students know about the upcoming unit. This KWL chart is simple and is created without lines so that students can express what they know in whatever way they want: pictures, words, sentences, labeled diagrams etc.

The GoogleDoc version is also versatile. Students can use the images feature if you wish, however encourage students to explain what each picture means as they will be able to search pictures and may not know much about them. This is also a great way for students to think about what they want to learn throughout the unit. Some of the pictures might spark their imaginations and get them invested in the unit.

At the end of the unit students can write in the things they learned.

Kahoot!

This Kahoot is a fun way to start out the unit. There are many questions that will encourage students to dip into their background knowledge. Kahoot is always so much fun and it gets very loud (because the kids are excited). Before you play with your class, make sure the answers reflect waste disposal in your community.

If you are unfamiliar with Kahoot, it's a quiz site. You will need to create an account with your email address. <u>Then your students can do the quiz at this link</u>. When you press start, your students can get ready to play. All they have to do is:

- (1) Type kahoot.it in their address bar.
- (2) Enter the game pin (this is unique to your game and will show up when you start the quiz).

For more information about how to play kahoot, watch <u>this video</u>.

If you have students use their first names you can save the data from the quiz to your google drive at the end of the game. You can use this data to see what concepts you need to focus on more specifically.

Assessment & Extension:

Students are going to explore food chains, find what makes up soil and create a report on recycling in nature. This assignment and research organizer are on page five (*TIP: print on llx/7 for more space*). Students can access the links with a QR code reader or you can post the bitly links on your school website or a shared doc on powerschool. I included five links at the bottom of the research page for students to explore and also included those five as part of the larger cards on page six.

As your students explore the sites and record information, take time to model the skills you want to see from your students.

After students have collected important information (in point form) on the organizer, they can start writing their report. Page seven has a nonfiction organizer for students to decide what they will write in each paragraph.

This is the point where they can make sure their point form notes are organized and can think about how they would like to write their report. This step is best completed as a class first and is a good opportunity to use minilessons to target your students needs.

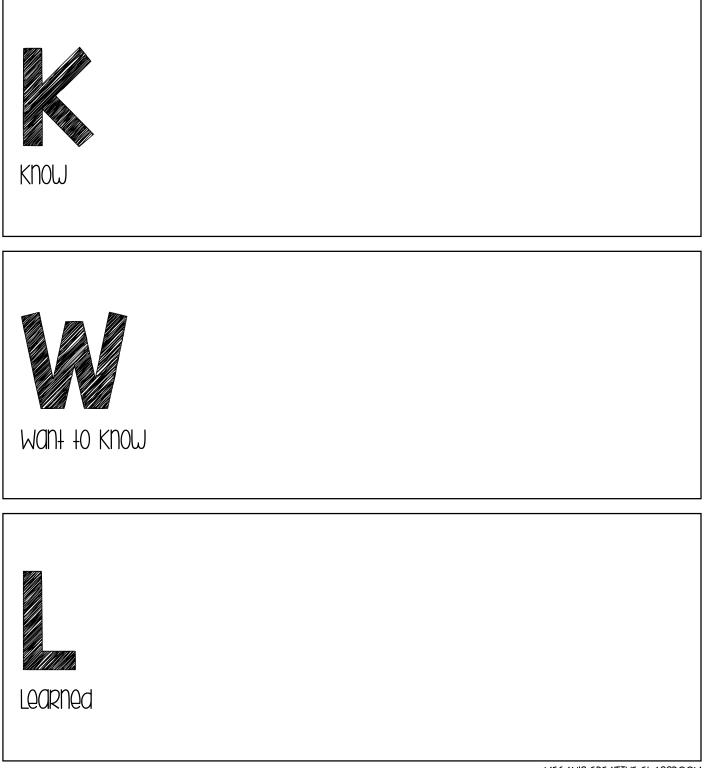
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KWL CHART



USE this KWL chart to keep track of your learning throughout the Unit. Start with the Know and Want to know sections. At the end of the Unit you can finish the Learned section.

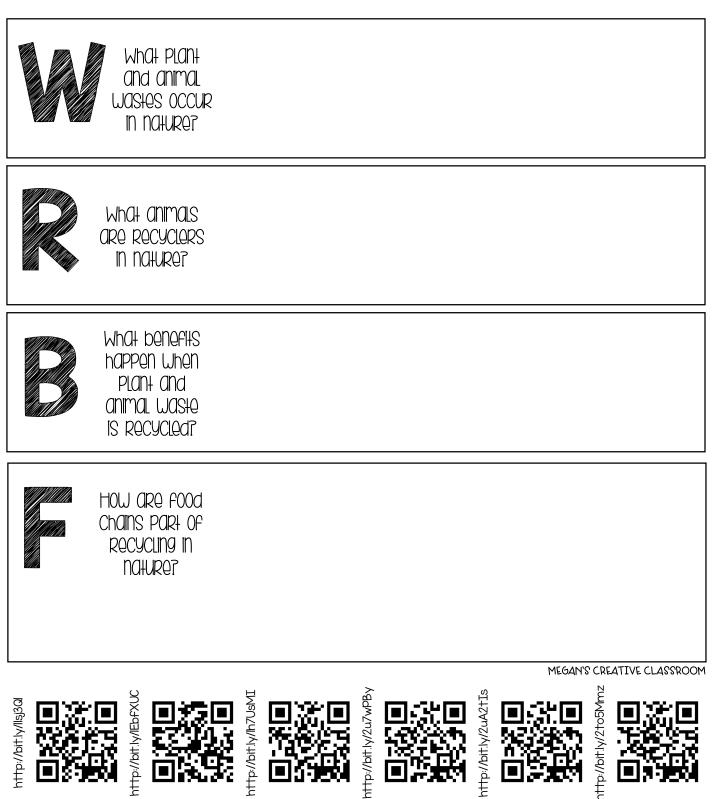




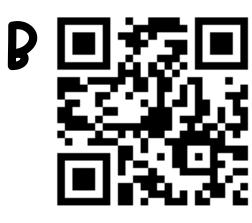
RECYCLING IN NATURE RESEARCH ASSIGNMENT

You will use the links below and the links your teacher gives you to Find information about recycling in nature. Use this organizer to record jot notes.



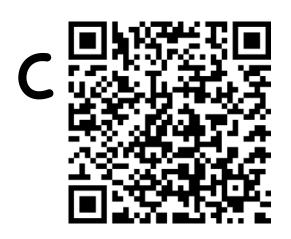






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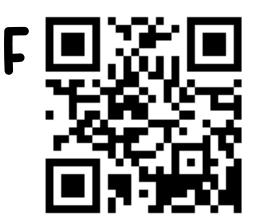


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http://bit.ly/lh7UsMI



http://bit.ly/2u7wPBy http://bit.ly/2to5Mmz







RECYCLING In Mature

NAME:			
	EXCELLENT	PROFICIENT	ADEQUATE / LIMITED
CONTENT	-Ideas are clear and on topic -Ideas are detailed and well explained -Information is accurate -Illustrations help explain written ideas	-Ideas are usually clear and/or on topic -Ideas are backed up with some detail -Information is accurate -Illustrations somewhat help explain written ideas	-Ideas are unclear and/or off topic -Ideas sometimes lack detail and/or explanation -Some information is inaccurate -No illustrations or illustrations are off-topic or unclear
ORGANIZATION	-Report is organized in a way that is easy to understand -Ideas are in appropriate categories	-Report is somewhat organized and is easy to understand -Ideas are usually in appropriate categories	-Some parts are disorganized and/or is difficult to understand -Ideas may be in inappropriate categories
VOCABULARY ¢ WORD USAGE	–Words chosen help explain ideas	—Words chosen often help explain ideas	—Some ideas are enhanced by word choice
CONVENTIONS	-Sentences have capitals -Sentences have end punctuation -Word wall words and content words are spelled correctly	-Sentences usually have capitals -Sentences usually have end punctuation -Word wall words and content words are usually spelled correctly	-Some sentences lack capitals -Some sentences often lack end punctuation -Word wall words and content words are spelled incorrectly
PRESENTATION	-Report is easy to read and understand -Report is neat -Report is visually appealing	-Report is generally easy to read and understand -Report is generally neat -Report is generally visually appealing	-Report may be difficult to read and parts may be difficult to understand -Report appears disorganized and/or messy -Report lacks visual appeal

COMMENTS:



ACTIVITY #2: WHAT IS COMPOST? Dirt, Soil and Compost



Materials Needed: One thing (page 10), Compost Cycle (pages 11–15), Compost Sorting (pages 16–24), compost bin with red wiggler worms (contact your local waste management center for suggestions in your community).

Introduce:

What is soil? What is compost? In this lesson students will explore why soil is important to life and how the compost life cycle creates quality soil that is good for growing. Later, students will create a compost bin and learn what items go in a compost bin and what items do not. Here are a few books you might want to add to your classroom library or read to your class:

- <u>Compost Stew by Mary McKenna Siddals</u>
- Wiggling Worms at Work by Wendy Pfeffer
- Composting by Robin Koontz
- My First Book About Backyard Nature by Patricia J. Wynne

Whole Group:

Students will watch a video about what makes soil. You can find some videos here: <u>The Dirt on Dirt</u>; <u>Who</u> <u>Needs Dirt?</u>; <u>The Dirt on</u> <u>Decomposers</u>; <u>Food Chains</u> They are fairly short. You can decide which ones to show your students.

Have students write one thing on page 10. Encourage them to think critically and write about one important fact that they learned from the videos. You could also have students write facts down on a sticky note or scrap paper to save you some prep time.

Once you have had time to investigate what makes soil, your can create a Compost Life Cycle poster. These can be pasted in a science notebook or you can hang them up in the hallway. Two versions are included: *page II -colouring page *pages 12-15 - cut & paste poster

The poster version comes with lined boxes for students to write information about each stage of the compost life cycle.

Garbage Sort:

This unit brings the opportunity for a pretty special experience – creating and maintaining a worm bin. YES! The kids love it and it's so good for the earth. Plus once you get to the <u>Plant Growth and</u> <u>Changes unit</u>, you can experiment and see how having quality soil affects a plant.

But before you can start the bin, it's important for your students to know what items they can put in the bin and what items do not. So this activity is a sort.

Pages 16-24 are full-colour cards to sort out. You can do this as a whole class and sort them in a pocket chart, or hand them out and have students paste them on chart paper. These posters can hang in the room for reference as students add to the bin.

Another option is to print pages 16–24 two to a page and paste the items in your science notebooks. This way, each student will get a copy.

Assessment & Extension:

Students will be creating a food chain for this lesson, which will work well for a piece of assessment.

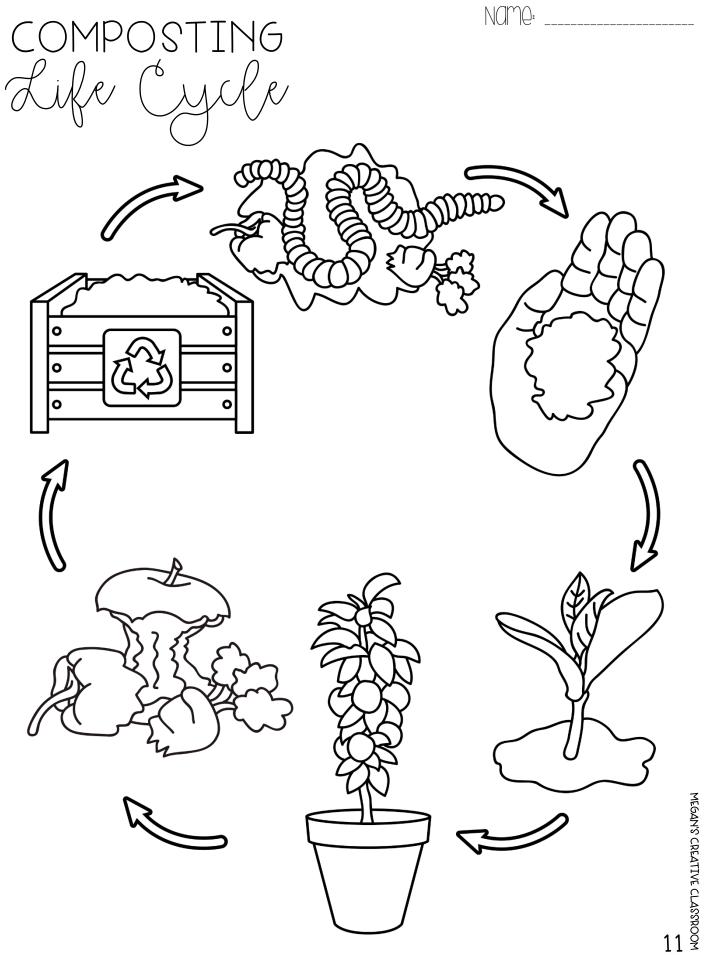
Another piece is their garbage sort. Students can take pictures of their work. When using pictures of work for assessment, I suggest you have your students write their name on a piece of paper, maybe a sticky note, and include that in the pic so that when you're sorting through them later you know who put together which set. I've created name magnets for voting, sorting etc. on the whiteboard. These could work for picture taking as well.

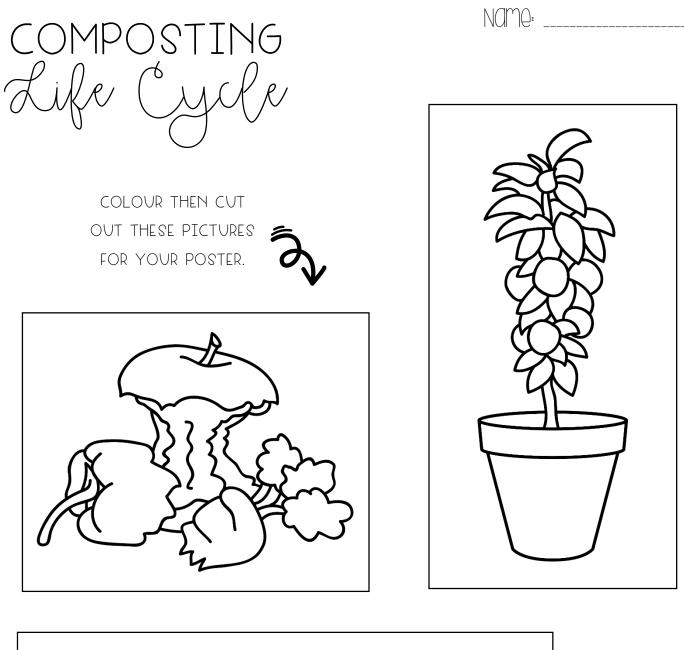
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To extend this lesson, you can have students find links online that would support the lesson. Have them send the links to you in a Google Document or even create their own QR codes using this site: L.https://www.qrstuff.com/

q

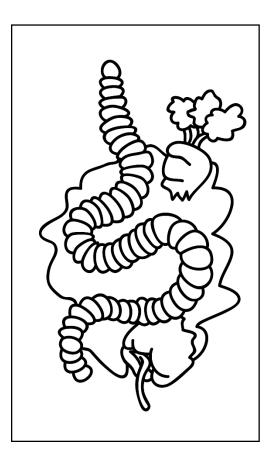
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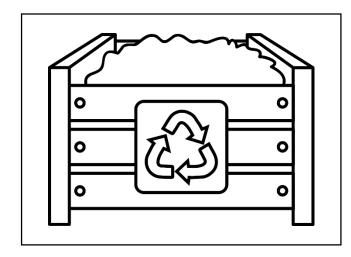


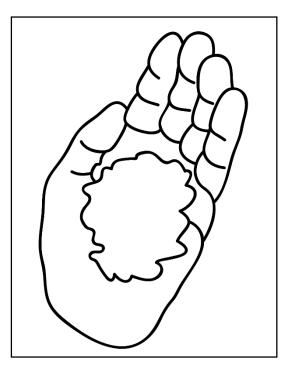




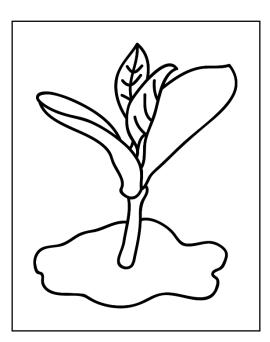








NAM6: _____



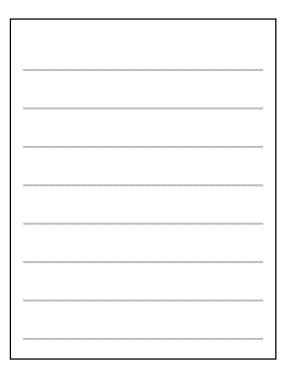
COMPOSTING	NGM6:
Life Cycle	
WRITE A FEW SENTENCES ABOUT EACH STAGE OF THE COMPOST LIFE CYCLE. THEN CUT OUT FOR YOUR POSTER.	

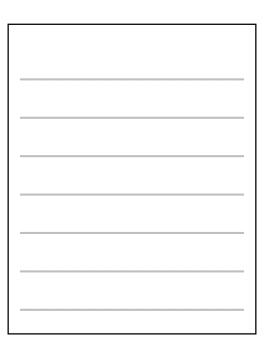
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14	CLASSROOM

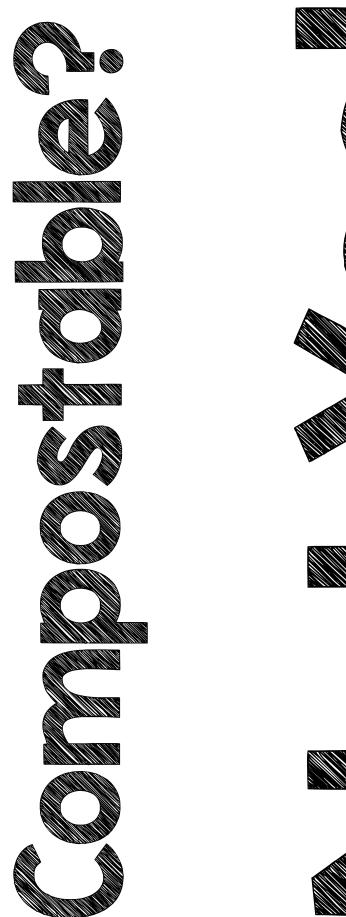
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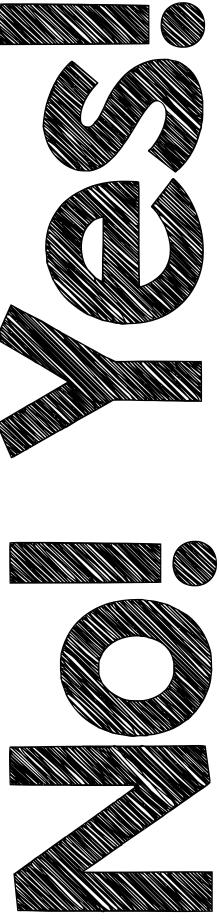




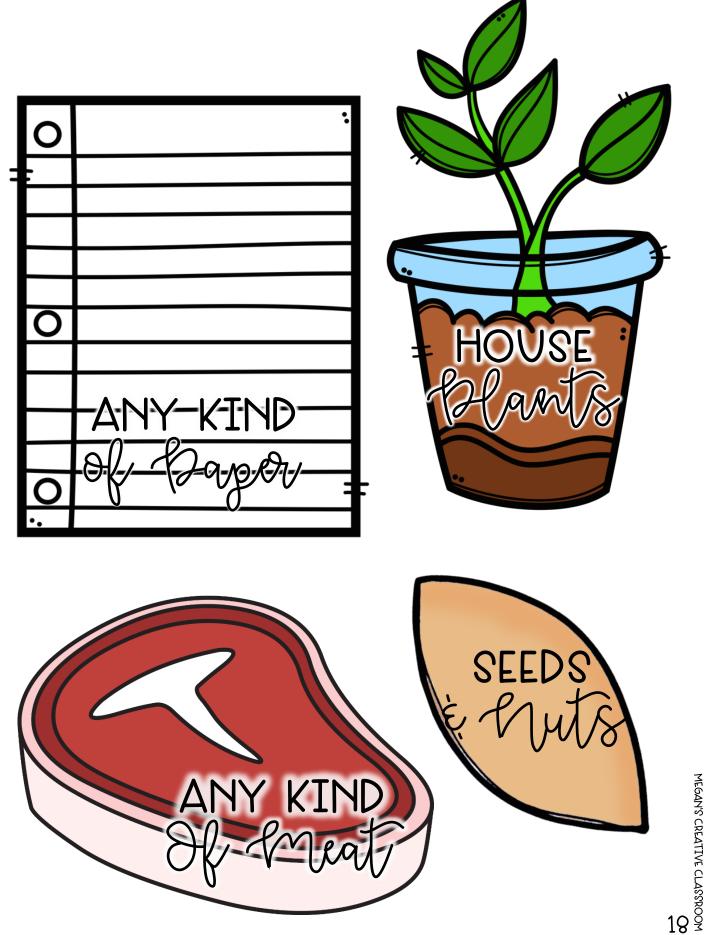


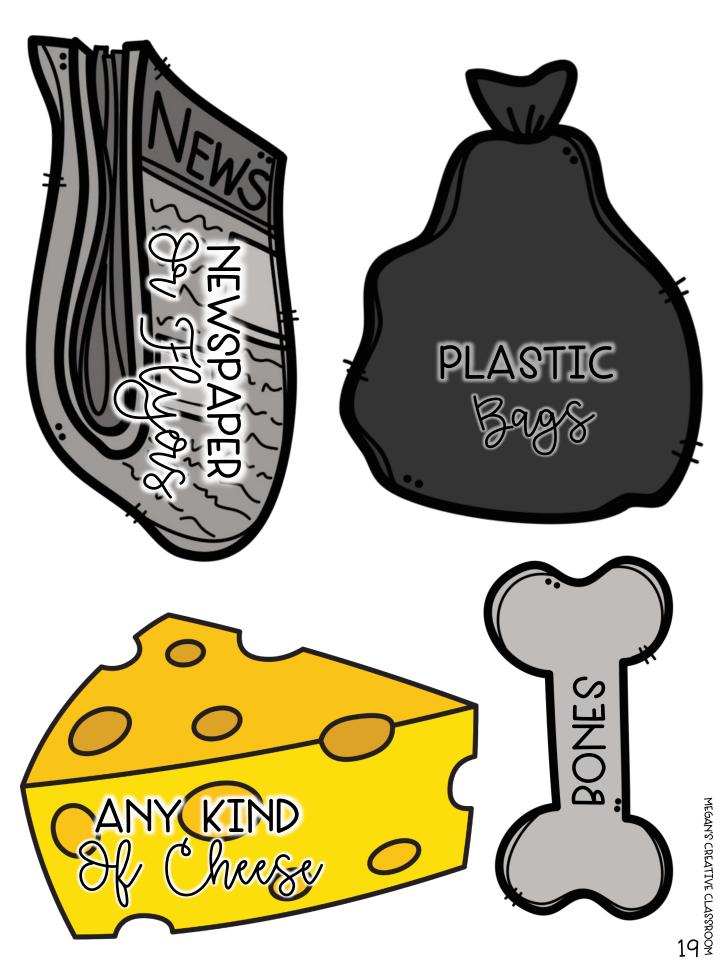






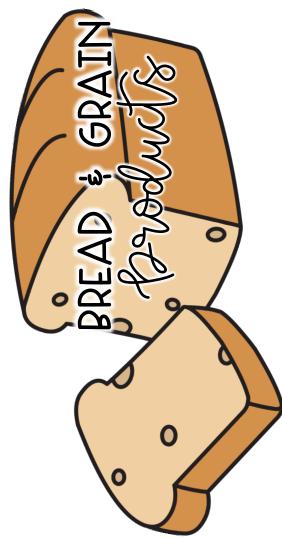


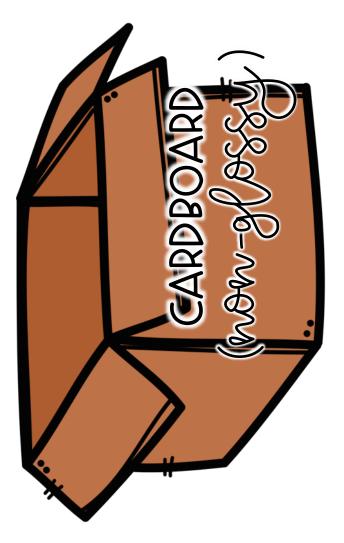








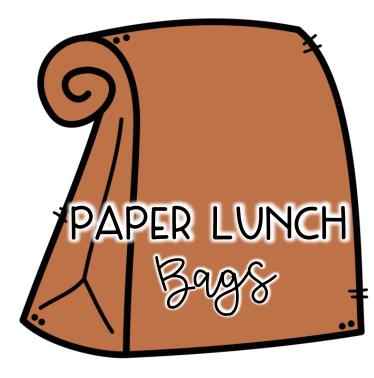




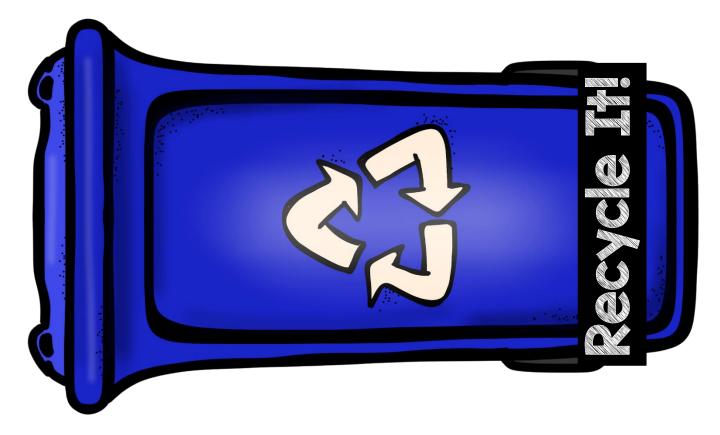


















ACTIVITY #3: REDUCING WASTE What can we do to change the world?



Materials Needed: The 3 R's Poster and Bookmark (pages 26–27); Grocery Flyers (to look through), Bulk item and the same item with excessive packaging; Waste Graph (in file; example on page 28); Recycled Sculptures Assignment (page 29)

Introduce: This lesson focuses on the 3R's: Reduce, Reuse and Recycle. Students are encouraged to understand the meaning of those three words by creating a promise to take care of their earth. To introduce the lesson, <u>begin</u> with this video on packaging. The video takes place in Australia but the concept rings true all over the world. Hopefully it will light a fire within your students to make a change in the way they see waste and it's a frame for the lesson. <u>The 3R's tie in beautifully</u> with this lesson because it's important that students understand the importance of reducing waste first. Students can brainstorm ways to <u>Reduce, Reuse and Recycle</u> on page 26.

Whole Group (KWL):

After watching the video on how much waste we produce, have students explore grocery store flyers (paper copies or online works too) and sort out a few examples of foods you can purchase with little or no waste and a few examples that have excessive waste.

After students explore the flyer, bring out your item with excessive packaging (Halloween is a great time for this with bite sized items). Get a conversation going:

- ~ What parts of the packaging are necessary?
- ~ Why is this item heavily packaged?
- \sim Why might we buy this item?
- ~ What happens to the packaging when we're finished with the item?
- ~ What alternatives might work to avoid excess packaging?

Then bring out the bulk version. Bulk Barn will allow you to bring in a reusable container to fill up, as opposed to using bags every time you visit.

Additional Links:

http://bit.ly/114BBSH http://bit.ly/2ybtal4

Nude Lunches!

The video link in the introduction mentions bringing a nude lunch. How you organize this is up to you, but here are a few ideas for you to try:

- As a class, write a letter to parents explaining why you're opting for a "nude (waste-free) lunch" and send it home.
- Brainstorm items that students can bring without waste, and ways they can reduce the waste in their lunches.
- Each day, give students time to open up their lunch kits and share the items they packed that pushed the boundaries to save our planet.
- Set a goal: the video mentions three days – a week would be a nice goal to set.
- For that week, have the custodian leave your garbage and not take it outside.
 Your food scraps should not be stinky because you have a worm bin!
 Compostable items could also be bagged as part of your city's collection and you can save the plastics, papers, etc.
- Create a <u>class graph</u> to document your findings. I've shared an example and tips on page 28. Graph file is editable and is found in the download folder as it is an IIX17 document).
- Reward students for their participation in the project with a special box or lunch container that promotes a waste-free lunch throughout the rest of the year.

Students absolutely love this challenge and they keep it going all year long!

Assessment & Extension:

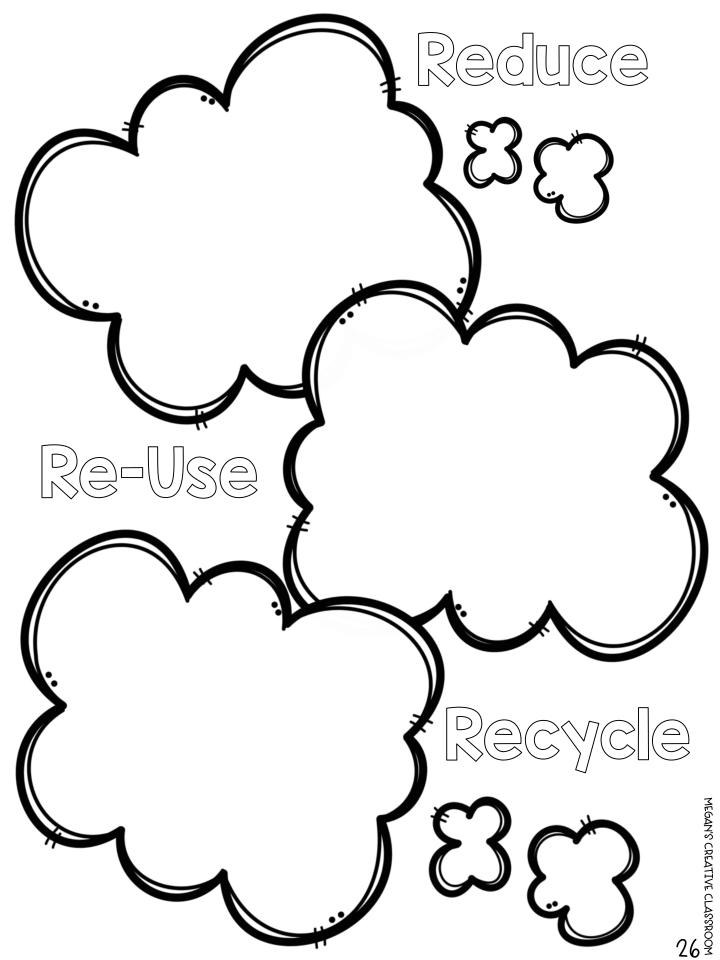
Students will create a recycled sculpture that ties art and science together. They will use found materials from their recycle bins. Give students a few weeks notice on this one. Once the bags are out, there's no going back! Have students save items that they think will make inventive and appealing sculptures. An assignment sheet and rubric are found on pages 29 and 30.

Before students build their sculptures, set a size limit and brainstorm what adhesives they can use. Make sure you have these available on building day. When the sculptures are complete, students can paint them or you can encourage them to use materials that are already the colour they want. Then the sculpture is completely reused.

Take pictures of students with their sculptures and create a wall of fame: We Re-Used Materials. You might even want to host a Share Fair and get other classes involved. Have students come visit your room so your students can share their work and their learning.

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http://bit.ly/2f7zxi6 http://bit.ly/IT38FwR http://bit.ly/2xu47wD http://bit.ly/2ymDRCk



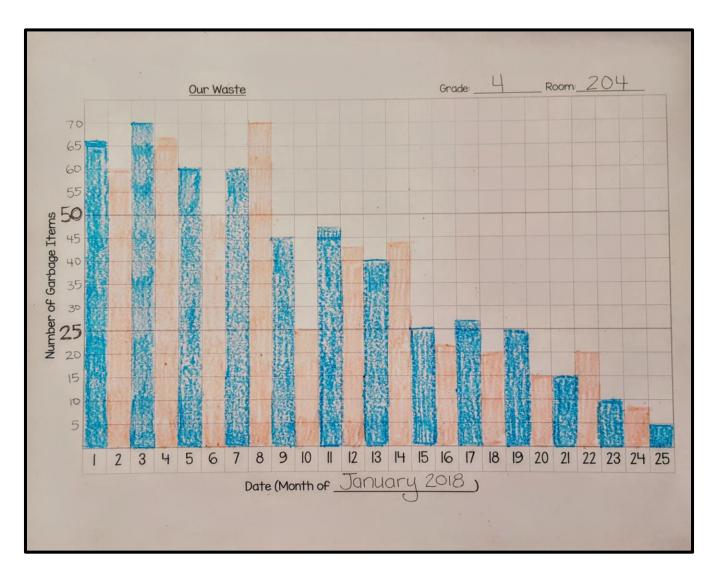
REDUCE	REDUCE	REDUCE
USO LOSS - RUU LOSS -	USO LOSS - RUU LOSS -	USO LOSS - RUU LOSS -
AVOID MOSPO	AVOID WOSHO	AVOID MOSPO
REVRE Nero cloth Bags - Make Pecycled arafts - shop at Thrift stores - shop at Thrift stores shop at Thrift stores and take to the pecycle bepage find take to the pecycle bepage	REVER NGO CLOH ROOS - MORO POCVCLED CROPS - MORO POCVCLED - MORO POCVCLED CROPS - MORO	REURE NGO CIOH ROBS - MORO PECUCIED COOH ROBS - MORO PECUCIED CROFIS - SIOP JURIT STORED PECUCIED CROFIS - SIOP JURIT STORED PECUCIED CROFIS PECUCIED CROFIS P

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Classroom WASTE GRAPH



TIPS FOR GRAPHING YOUR WASTE:

- Decide before you start if you will be counting on school days only or on the weekends as well.
- ▶ USE two colours to make it easier to read.
- ▶ FILL OUT THE Y-AXIS AS A CLASS SO ALL STUDENTS HAVE THE SAME NUMBERS.
- ▶ BUY SOME bINS to help students keep track of their Waste.
- WRITE A LETTER TO PARENTS AS A CLASS AND SEND IT HOME DEFORE STARTING.

Name:
VSING RECYCLABLE MATERIALS: AN ART PROJECT Many artists Re-use materials to create art. Visit <u>http://bit.ly/iccqogc</u> to see a few examples. Your assignment is to create a piece of artwork that uses only recyclable or reused materials that you would have thrown out. No traditional art supplies will be used for this project.
YOU WILL BE MARKED ON Three Things
1. YOUR USE OF MATERIALS.
- USE A VARIETY OF JOINING TECHNIQUES
- USE FOUND MATERIALS TO CREATE A COHESIVE
PIECE
2. YOUR MESSAGE. - Tell A story

- EXPRESS A FEELING OR AN IDEA

- 3. THE QUALITY OF YOUR WORK.
- ADD DETAILS, PATTERNS AND TEXTURES TO YOUR

WORK

- CREATE A WELL-PRESENTED PIECE OF ART

RECYCLING Art Project

NAME:			
	EXCELLENT	PROFICIENT	ADEQUATE / LIMITED
MATERIALS	Student uses a variety of materials that strongly contribute to the message or theme. Materials work together to create a cohesive piece of artwork.	Student uses a variety of materials that contribute to the message or theme. Materials used work together to create a somewhat cohesive piece of artwork.	Student uses found materials and creates a piece of artwork that meets the requirements.
MESSAGE	Piece sends a strong message that can be interpreted visually.	Piece sends a message that can be interpreted visually and might need some explanation.	The message of the piece is limited or unclear. Information presented by the artist supports the piece.
QUALITY	Student created a quality piece of artwork with details, textures and patterns that enhance the form and/or contribute to the message.	Student created a piece of artwork with details, textures and patterns some that somewhat enhance the form and/or contribute to the message.	presented by the artist supports the piece. Student used some details, textures or patterns. Piece may lack quality craftsmanship in one or more areas.

COMMENTS:

RECYCLING Art Project

NAME:		_	
	EXCELLENT	PROFICIENT	ADEQUATE / LIMITED
MATERIALS	Student uses a variety of materials that strongly contribute to the message or theme. Materials work together to create a cohesive piece of artwork.	Student uses a variety of materials that contribute to the message or theme. Materials used work together to create a somewhat cohesive piece of artwork.	Student uses found materials and creates a piece of artwork that meets the requirements.
MESSAGE	Piece sends a strong message that can be interpreted visually.	Piece sends a message that can be interpreted visually and might need some explanation.	The message of the piece is limited or unclear. Information presented by the artist supports the piece.
QUALITY	Student created a quality piece of artwork with details, textures and patterns that enhance the form and/or contribute to the message.	Student created a piece of artwork with details, textures and patterns some that somewhat enhance the form and/or contribute to the message.	presented by the artist supports the piece. Student used some details, textures or patterns. Piece may lack quality craftsmanship in one or more areas.

COMMENTS:



ACTIVITY #4: DANGEROUS WASTE Can our waste damage our Earth?



Materials Needed: Dangerous Symbols Posters (pages 32–35), Matching Game (pages 36–39); "I Spy" take home assignment (page 40); Hazardous Waste Assignment and Rubric (pages 41–43), <u>3–2–1 Organizer –</u> <u>digital version</u>; <u>Google Slides Presentation Template and Rubric</u>.

Introduce: Hazardous waste is all around us and we use items that can be dangerous in our everyday lives. Ask your students what the term "hazardous waste" means. Many students will be able to contribute an idea but many will not realize how many things around them are hazardous! <u>Watch this video with your class</u>. They talk about items that we all have in our homes that can be dangerous.

Whole Group (KWL):

After watching the video on hazardous waste have a conversation about how many of the things in the video:

- Have you seen these products at home, school or at the store?
- How are they kept?
- How are they used?
- How are they disposed of?
- Who uses them or stores them?
- Who has access to them?

Students may have stories about the products in response to the questions above. Give them time to share. A think-pair-share is a great strategy for this type of group conversation because it gives all students a chance to share.

Next, discuss the possible dangerous consequences of coming in contact with these products. Hang up the posters on pages 32–35 and ask students which products (from the video or conversations) might fit under each warning label. Students can write their responses on a sticky note and stick them up under the poster. Please note that some products fit under more than one warning label.

Matching!

Get your students engaged in their learning with a matching game. Pages 36–38 can be cut out and used as a memory game. Each student can get their own copy and take them home to play with their parents to share their learning. Print the envelope on page 39 so students can keep them safe on the trip home. These cut-outs can also be used to create a poster.

I-Spy!

After students have had a chance to share their stories, give them the opportunity to be spies at home and search for hazardous waste around their home. The printable take-home sheet is on page 40. Printed on the sheet is a warning for students to only conduct this "top-secret" search with their supervisor (i.e. their parents) for safety reasons. There's a section for diagrams of the dangerous items. You can decide if you want students to create a quick sketch or if you want them to print pictures of their "evidence".

There's a section on this page that asks for a promise to keep their homes safe by locking up their hazardous waste and taking it to the waste management center.

Hazardous Waste and Our Planet:

Students will conduct an online research project to gain a deeper understanding of how hazardous waste, when disposed of improperly, can hurt our environment, plants, animals and human beings too.

Page 41 has printable QR codes for students to start their research. They can take pictures of the codes using the camera on a Chromebook if you install this (<u>or a similar</u>) <u>extension</u>. Websites can also be accessed on a tablet with a QR code reader.

Students can record their ideas on the printable (page 42) or they can use this <u>Google Slides template</u> which can be easily shared on Google Classroom.

A research and presentation rubric is included in this unit (page 43) and is also available at the end of the <u>Slides presentation</u> for easy marking. Just move the circles to the boxes that describe the student's work, type in a few comments and print the slide.

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Additional Links: http://bit.ly/2y3rm0e

http://bit.ly/2xjWmWv

http://bit.ly/2xj4POS http://bit.ly/2yKxmsz

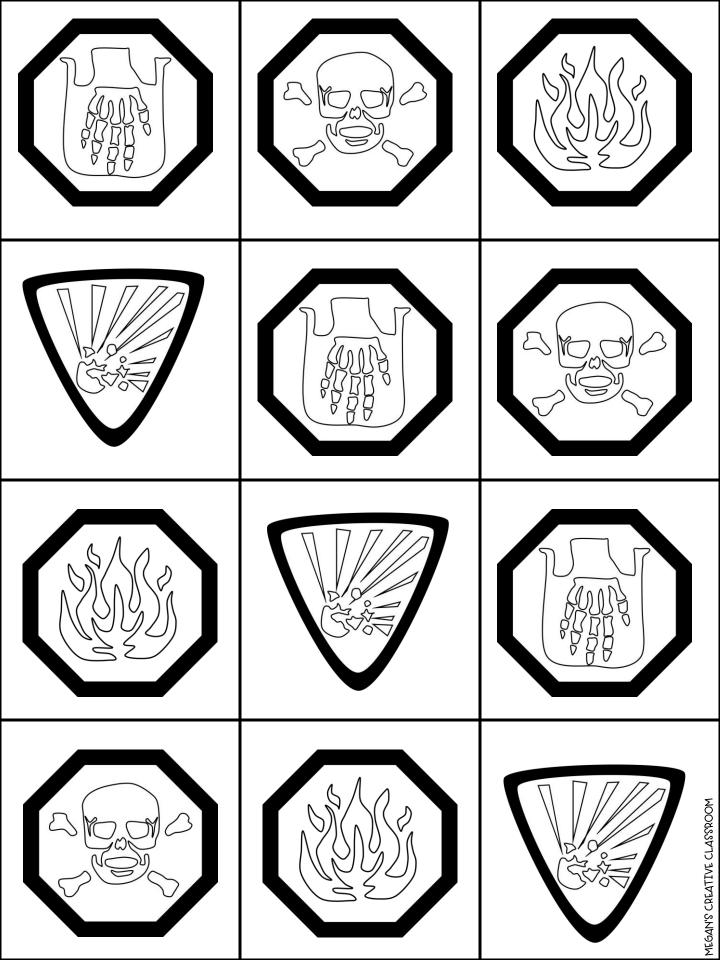
http://bit.ly/2yreenh http://bit.ly/IPF3v92



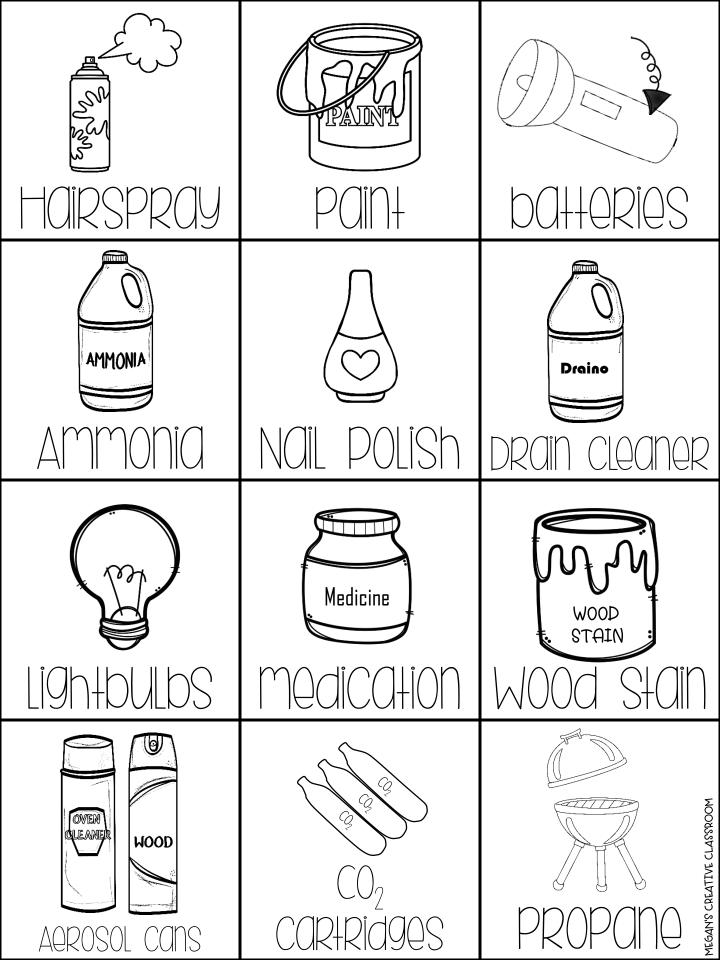


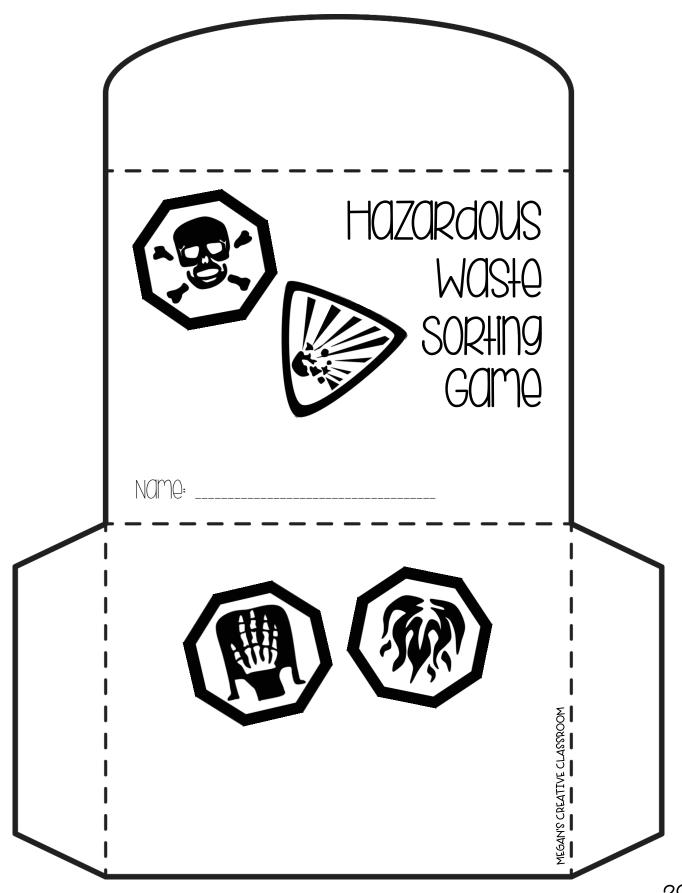






CORROSIVQ	EXPLOSIVQ	Flammable
Poison	This hazardous Waste burns easily. Keep away from heat sources and open flames.	This hazardous Waste can eat away at surfaces and skin. Wear protective gloves.
OXY990 Hanks	This hazardous Waste can cause serious damage to Living things if consumed or absorbed by the Skin.	This hazardous waste can react violently if mixed with other materials or can be under extreme pressure.
CLEANING PROdUCTS	Hand Hand Sanitizer	Fertilizer FORHILIZOR







HAZARDOUS WASTE: I-SPY

IS hazardous waste hiding in your house? Maybe under the sink? In the garage? In the basement? with an adult, take a look around your house and see if you find any of the hazardous symbols you learned in class. record your findings below.



ITEM	HAZARDOUS SYMBOLS	SAFELY STORED YES OR NO?

MY PLEDGE:

I PROMISE to keep hazardous materials locked up in a safe place. I promise to take containers from dangerous items to the waste management center for proper disposal.

I PROMISE to always read the warning labels on products around my home to keep myself and my family safe.

SIGNED,

MY NAME:





http://bit.ly/2hJ6z8S http://wwf.to/lzLNUu5





http://bit.ly/IF65QRm http://bit.ly/NKMqld





http://bit.ly/IN37GgK http://bit.ly/2yp6HnF

Name: _____



MAZARDOUS WASTE & OUR PLANET



USE the ar code cards to find information about how hazardous waste can harm our environment, people, plants and animals. You can also find some websites on your own. record your ideas below:

Things I Learned	
Interesting Facts	
QUESHON I HAVE	

HAZARDOUS WASTE Presentation

NAME:			
	EXCELLENT	PROFICIENT	ADEQUATE / LIMITED
IDEAS	Ideas are specific and informative. Students include many details to support their ideas.	Ideas are general and some important points are included. Students include details in some areas, but some areas might lack support.	Ideas lack support and details. Students present ideas relevant to the topic and are able to present their ideas.
ORGANIZATION	Presentation has a flow that informs the audience. Ideas are organized in a cohesive manner.	Presentation may be a bit choppy but information is presented in a way that the audience is able to understand.	Ideas may be presented in a disorganized way that affects delivery of information.
PRESENTATION	When presenting information, the presenter uses a loud clear voice and speaks with confidence. He/She is able to answer questions about their research.	Presenter shares information in a clear way and is able to answer some questions about their research.	Presenter shares information in a way that gets ideas across in a general way. He/She may not be able to answer many questions about their research.

COMMENTS:

HAZARDOUS WASTE Presentation

NAME:			
	EXCELLENT	PROFICIENT	ADEQUATE / LIMITED
IDEAS	Ideas are specific and informative. Students include many details to support their ideas.	Ideas are general and some important points are included. Students include details in some areas, but some areas might lack support.	Ideas lack support and details. Students present ideas relevant to the topic and are able to present their ideas.
ORGANIZATION	Presentation has a flow that informs the audience. Ideas are organized in a cohesive manner.	Presentation may be a bit choppy but information is presented in a way that the audience is able to understand.	Ideas may be presented in a disorganized way that affects delivery of information.
PRESENTATION	When presenting information, the presenter uses a loud clear voice and speaks with confidence. He/She is able to answer questions about their research.	Presenter shares information in a clear way and is able to answer some questions about their research.	Presenter shares information in a way that gets ideas across in a general way. He/She may not be able to answer many questions about their research.

COMMENTS:

ACTIVITY #5: AN EARTH FRIENDLY SCHOOL

Materials Needed: Earth Pledge poster printables (pages 46–48); Pledge and check-ins (page 45); My Earth Pledge sign up (page 49).

Introduce:

Introduce this lesson by asking students what "Carbon Footprint" means. Many students may not know this term, or what kinds of things might affect their footprint.

Carbon Footprint: the amount of greenhouse gas created when we complete our every day activities.

When students are aware of the definition, ask them <u>what kinds of things</u> might produce greenhouse gas (electricity, natural gas, petroleum products, etc.) and what kinds of things we do every day that might create those gasses. Students can then use this <u>link</u> to calculate their carbon footprint (<u>here's another option</u>). The first is a really basic calculator, but there are some interesting facts presented and some ways to help improve students carbon footprint. The second is much more detailed and has some next steps students can use as a start for this assignment.

Whole Group (KWL):

Reducing our carbon footprint can have a large impact on our earth. If every one of us does a little bit to reduce our waste, we can help save the earth.

So what can we do to reduce our carbon footprint at school? Each classroom is different and students will need some time to think about this. Hopefully they have already noticed some things around the school throughout the unit. Some examples for **teachers** might be:

- GOOS paper - Good on one side for sketching, drawing, calculating etc. These papers are often discarded by staff in the copy room. Start a bin and use the paper in your room.

'- **One paper towel** - don't grab a handful of paper towels every time you dry your hands. One will do.

- Cut out the disposable lunches. Do your best to show your students that re-usable containers are practical and can help reduce your carbon footprint.

Next Steps!

Students will see your examples and your pledge and be excited to create their own. <u>Have them brainstorm</u> ways to reduce their carbon footprints at school. Students can use the google slides presentation to collect their ideas using pictures or words. They can work in groups to complete a slide or each student can create their own slide. These ideas will be the basis of their project.

Students will each choose one thing that they are passionate about and will create a poster (pages 46-48) to hang in the school. If you have an assembly, students can share their ideas with the school there too.

The idea is that each student will make a pledge to reduce their carbon footprint and share it with the school via poster. When other students see their dedication, they will make an effort to reduce their footprint as well (page 49).

Have a chat with your staff about your initiative and encourage them to share it with their students. When they see the posters hanging in the hallway, they can sign up on the sign up sheet beside it. Students will be brought together by similar views and the public dedication will help them stick to their pledge.

Assessment & Extension:

Students will create a poster to hang in the school. They can also have an opportunity to share at a school assembly.

Students will write up a pledge form and will re-visit it three times throughout the year (page 45). Keep these safe and bring them out for students to evaluate how well they've been sticking to their pledge and what they can do to keep it up.

To extend this activity, students can explore some of these fun links.

https://climatekids.nasa.gov/menu/play/

https://climatekids.nasa.gov/menu/carb ons-travels/

https://www.energystar.gov/index.cfm? <u>c=kids.kids_index</u>.

http://bit.ly/2zewFHZ

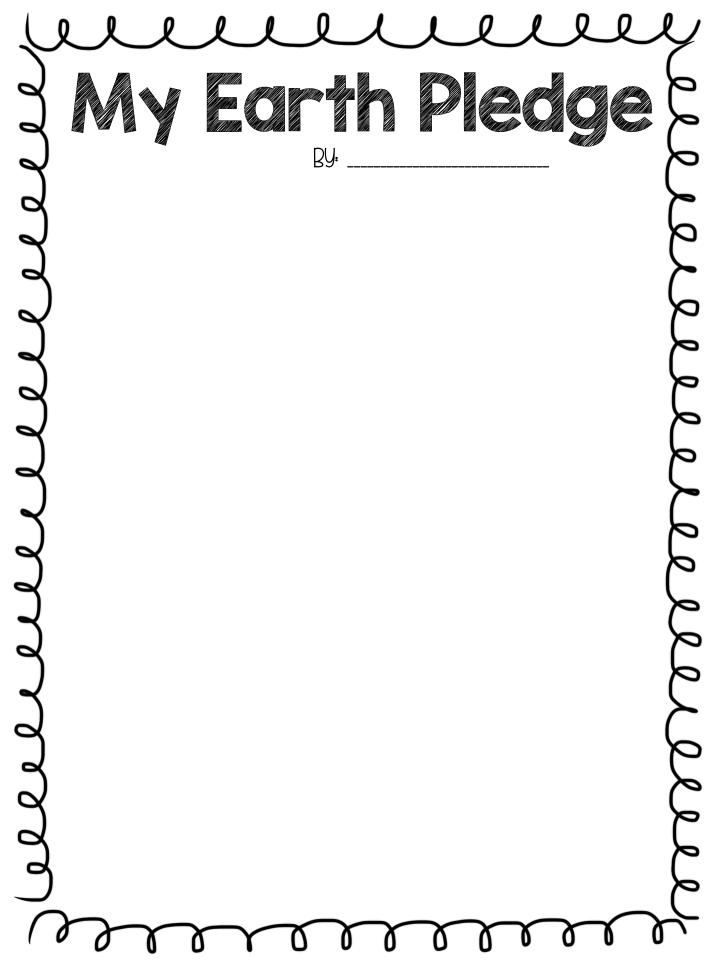
http://www.energyarchive.ca.gov/energ yquest/index.html MEGAN'S CREATIVE CLASSRO

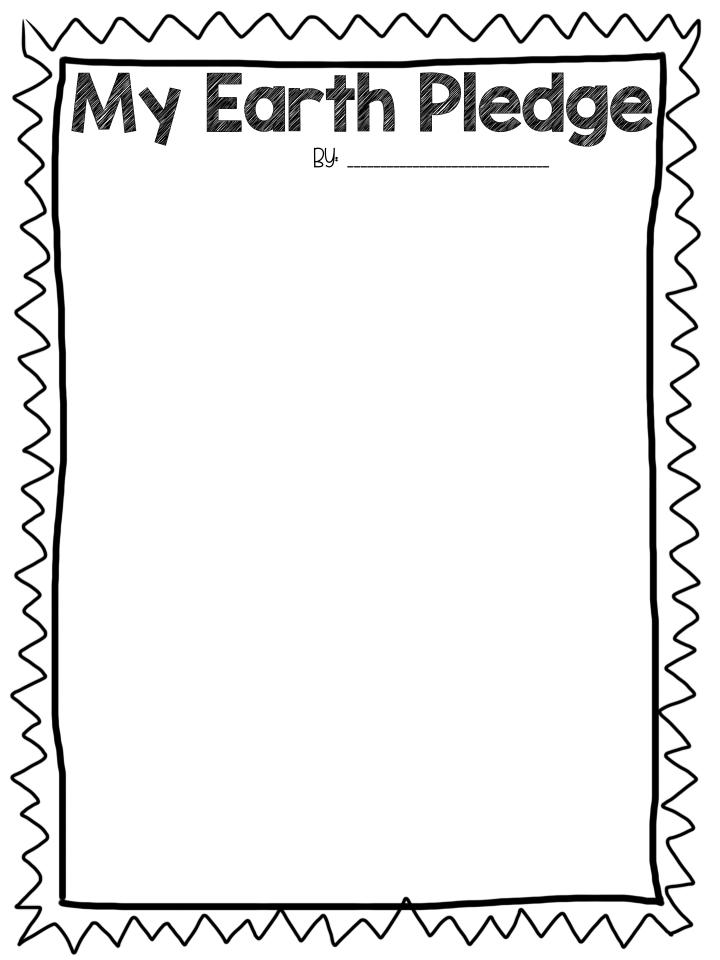


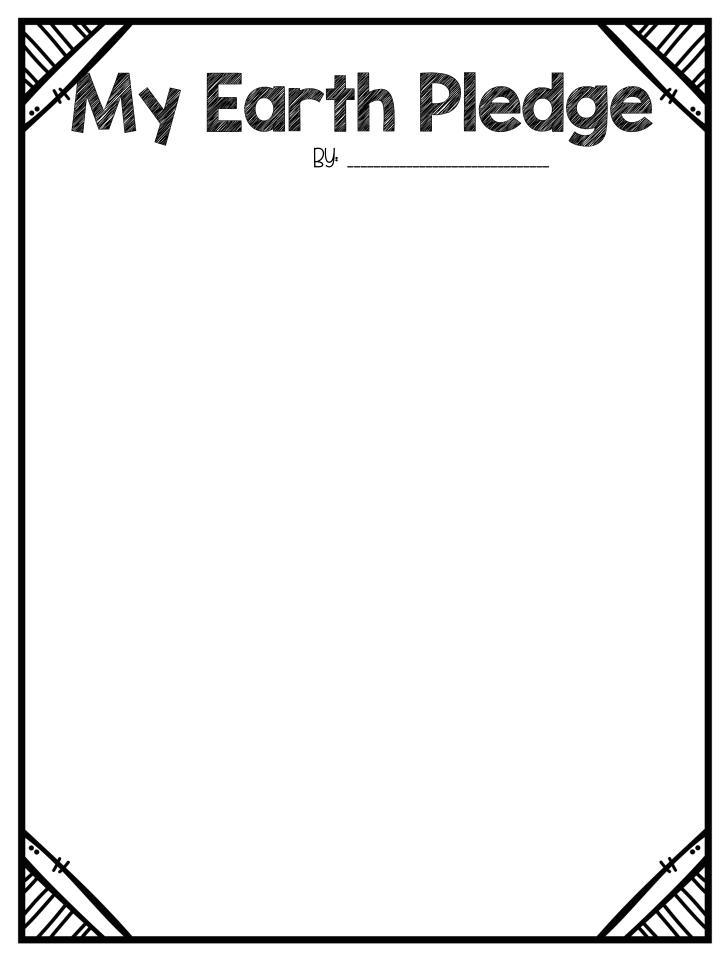
MY EARTH PLEDGE & CHECK IN

AS YOU'VE LEARNED IN CLASS, the things We do in OUR daily LIVES CAN AFFECT the ENVIRONMENT. What is one thing you pledge to change to help Reduce your carbon footprint? Write it below. You will have a chance to check in and see how you've stuck to your pledge three more times this year.

MY PLQd9Q:			
ChQCK #1: (DQ+Q:)		
Check #2: (Date:)		
Check #3: (Date:)		
CONCLUSION:			









MY PLEDGE TO REDUCE MY CARbon FOOTPRINT IS:

sign your name below if you will join me to reduce our carbon footprints!



ACTIVITY #6: THE GARBAGE CYCLE Where Does Our Garbage Go?



Materials Needed: The Garbage Cycle Reading and Flow Chart (pages 51–52); Where Does My Garbage Go? (page 53); Garbage Cycle Game Board, Card Template, Rules Printable (pages 54–56), Large Gameboard (attached in file).

Introduce:

We do our best to reduce, reuse and recycle, but then what? Our waste gets recycled - but into what? Take time to check out the links: Link 1; Link 2; with your class and investigate deeper what products we use every day that were once something else. Students are going to be following the life of their garbage in this lesson by reading about the Garbage Cycle and by creating a game that incorporates the changes that our paper, plastic, glass and metals experience.

Whole Group (Read):

As a class read page 51. You can pull it up on your SmartBoard or you can print copies so students can practice taking notes and highlighting.

Have students read the page and think about their waste. What recyclable materials have they disposed of today? This week? Since September? If they recycled these items, where are they now?

Have this discussion with your kids. Create an anchor chart to collect their ideas. Share page 52 with your students. It's a sample of the garbage cycle. Some recyclable items can be used over, some have a limit on how many time they can be recycled, and some are just disposed of safely. Encourage students to find examples of some of these items as they investigate during the next phase.



Additional Links: http://bit.ly/2yvbDZ6

http://bit.ly/2gvrVdz http://bit.ly/2xSkggF http://bit.ly/2le5Qht

New Recycled Items:

Share the links in the "Additional Links" section and the two links in the intro with your students. You can post them on Google Classroom so that students have easy access to them.

Students will investigate where their recycled items go and what they might become. This research will be part of their Garbage "flow chart" or cycle and will be the basis of their garbage game.

Students will use the organizer on page 53 to choose an item that they have recycled recently. For example, a student might choose a juice box they had for lunch or a PS4 box they got for their birthday. They will use the links provided to find out what possible items that recycled item might become after being recycled and take notes that will help them structure their game.

This game is intended to be a culminating project and will give students an opportunity to use the information they've learned throughout the unit. Students will create question cards (template on page 55) that incorporate all their learning. The board itself will meet the outcome of creating a garbage flow chart. The game board will illustrate the life cycle of a piece of recycled material.

Game Board and Rubric:

Game boards, cards and rules will all be marked using the rubric on page 57.

Investigate board game rules before writing out your game rules. You may have some board games in your classroom that you can take a look at first. Here's a helpful resource from Charleston School District about creating a board game. Then, as a class create a checklist for what items or topics must be included in their game.

You can post the I Can Statements included in this file to give students a visual for the topics they should cover as well.

Also included in this file is a large page version of the game board. This is nice because it gives students more space to work with for their game.

A fun extension would be to have students create game pieces or a box to house the game using recycled materials.

A couple useful resources from the City of Edmonton: http://bit.ly/2zfSb0o http://bit.ly/2gvrVdz

http://bit.ly/2xSSeBX

http://bit.ly/InaMaWN

MEGAN'S CREATIVE CLAS 50

THE GARBAGE Cycle

Human waste is much more complex than just garbage and we have found that out throughout this unit. We create many types of waste. Some of these include: garbage that goes to the landfill, household hazardous waste, compostable waste and recyclable waste.

We've learned how to sort our waste so that it can go where it belongs and that our city takes care of our waste in the most efficient way possible. But what happens to our garbage after it leaves our homes?

Each type of waste has a different destination. Some items will be reused and may even show up in our homes again. But some wastes cannot be reused and will end up at a landfill or will be disposed of safely at the ecostation.

Here are some examples of waste we might create in our everyday lives. Circle the items that you think will have another life after being recycled.





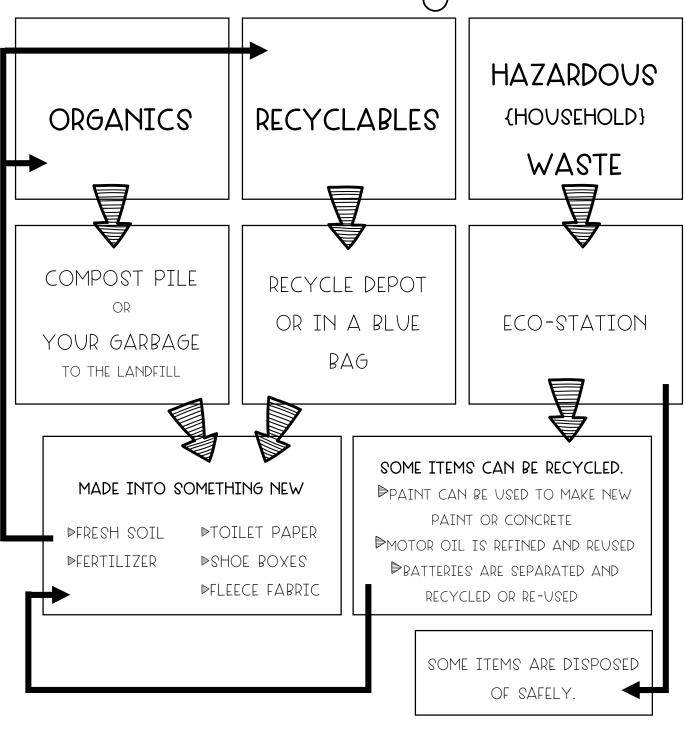




What did you notice about the items above? Take a minute to talk about it with your elbow partner. There are very few wastes that cannot be reused, at least in part, however it's important that we take the time to dispose of our garbage properly or many items that can be reused, recycled or composted will not have a new life.

What does your city or town recycle? Not all waste disposal systems are created equal. Take a minute to investigate what system your community has in place. How can you use the services to make our Earth a better place? 5











WHERE DOES MY Garbage GO?

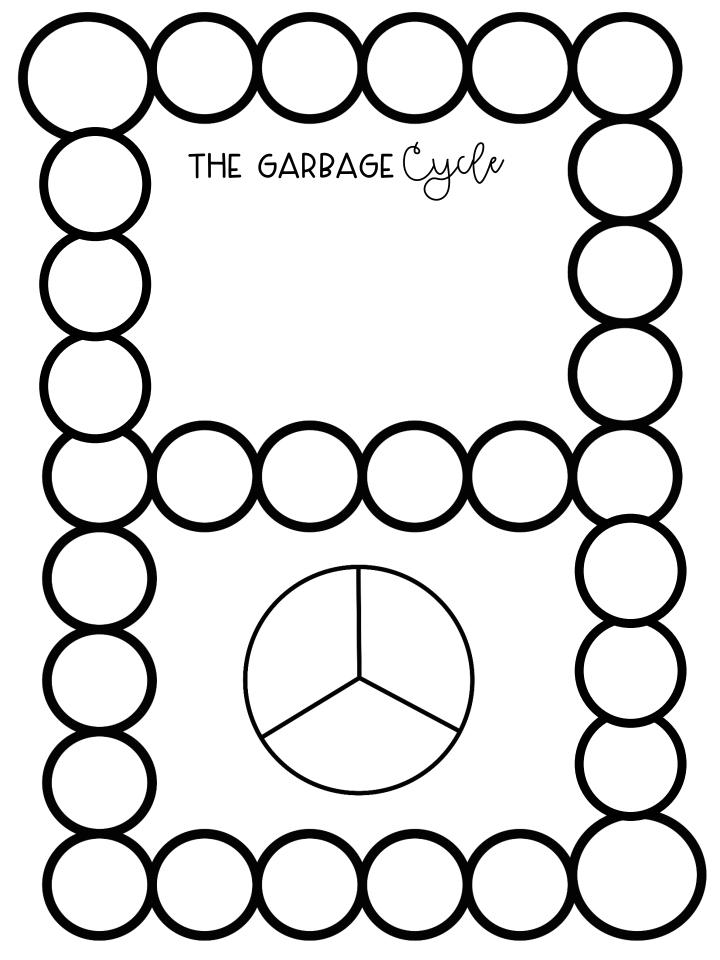
MY Waste Item:

MY IFEM IS MADE OF:

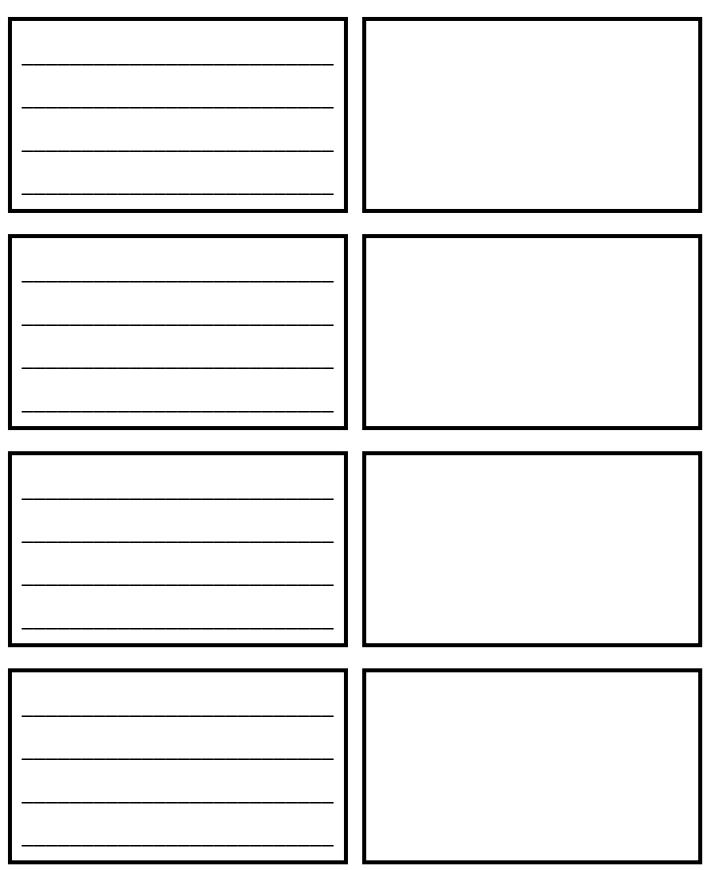
Each part can be separated and disposed of:

New Hems that may be made from my Hem:

MY IFEM belongs in the:	Landfill recycle ce eco-station compos	
MY IFEM WILL ÞE:	dISPOSED OF SOFELY RECYCLED	RQ-USQD COMPOSIQD
INTERESTING FACTS About MY ITE	Ĵ.	CULTPOSTEC TREATIVE CLASSROOM



Card TEMPLATES





MY	GOM)MQ:		
NUr	nber	OF	PLAYC	RS:	
PiQ(CQS/M	NAte	PRIALS	NQQ	dQd:

Object of the game:

NULQS:

IMPORIANT CARds:

MEGAN'S CREATIVE CLASSROOM

BOARD GAME Rybric

Student Name:

	Excellent	Adequate	Limited
Theme	Board game clearly represents the garbage cycle and includes accurate information about how waste is managed.	Board game represents the garbage cycle and includes mostly accurate information about how waste is managed.	Board game somewhat represents the garbage cycle and includes some information about how waste is managed.
Organization	Board game and rules are easy to understand and follow. Game is creative and thoughtful.	Board game and rules are generally easy to understand and follow. Game is complete and informative.	Board game and rules are satisfactory. Game may be incomplete or lack detail and rules may require explanation.
Science Concepts	Game, rules and cards include an in-depth understanding of science concepts covered in the Waste and Our World Unit.	Game, rules and cards include a general understanding of science concepts covered in the Waste and Our World Unit.	Game, rules and cards include a partial understanding of science concepts covered in the Waste and Our World Unit.
Conventions	Game, rules and cards are free from spelling errors and include appropriate conventions.	Game, rules and cards may have some errors in spelling and/or conventions.	Game, rules and cards have errors in spelling and/or conventions that impacts clarity.

NOTES & COMMENTS:



ACTIVITY #7: WASTE WATER What About Our Water?



Materials Needed: <u>City of Edmonton Waste Water Guide</u>, To Flush or Not to Flush? (page 59), Questions about water in your community (page 60).

Introduce:

We've talked about solid waste throughout the unit, but what about our water? Our water is re-used over and over again and a water treatment plant services your community with water. Many dangerous chemicals and substances can make our drinking water dangerous and in this brief lesson, your students will investigate to determine what can go down the drain and what can not. To learn more about your town's sewage treatment, contact your waste management center.

Warning: This topic can bring about many questions that can be difficult to answer. For example, personal products such as tampons and condoms (mentioned in the lst video), human waste such as feces, urine etc. Additionally, students learn that the water they drink and the water they flush are combined and treated and that they will eventually drink this water.

Whole Group (Watch):

Before watching the videos, have your students make predictions on page 59.

Here are a couple of videos to watch with your students about what items can go down the drain and what can not.

http://bit.ly/2zjNsNc http://bit.ly/2zf6kNL http://bit.ly/2A9ufLy

Websites about waste water:

http://bit.ly/lyl3m0s http://bit.ly/2xM0oM9



Additional Links: http://bit.ly/2zQQ0D6 http://bit.ly/2zRRxss

Don't Flush That!

To kick off this lesson, read Robert Munsch's <u>Down the Drain</u>. In this book there are many many items that should never go down the drain! <u>Listen</u>.

Students have had a chance to watch a few videos and explore a few websites to learn more about what items should not go down the drain. In this activity students will make a public service announcement poster to hang up around the school.

Their posters should spread the word that our waste water system cannot handle certain items. Have students sign up for certain items so that there is a variety.

As a class, create a checklist for their posters. Some ideas might be:

- . – Must have a large, clear title
- Item advertised must be clearly marked as "allowed" or "not allowed"
- Must include at least three sentences explaining why the item is not wise to put down the drain, including a consequence.
- Must be coloured, no white space
- Must have a clear graphic of the item

Your City's Sewage:

Every city has a different waste management system, but sewage systems are particularly unique to each community.

Students will get a copy of page 59. This page has questions about your community's sewage system. You can work together to find the answers using a search engine, such as Google, you might be able to have someone from your local waste management or water treatment center come in and answer questions, or you might be able to request pamphlets or educational resources from your community. Many communities have teacher resources if you investigate.

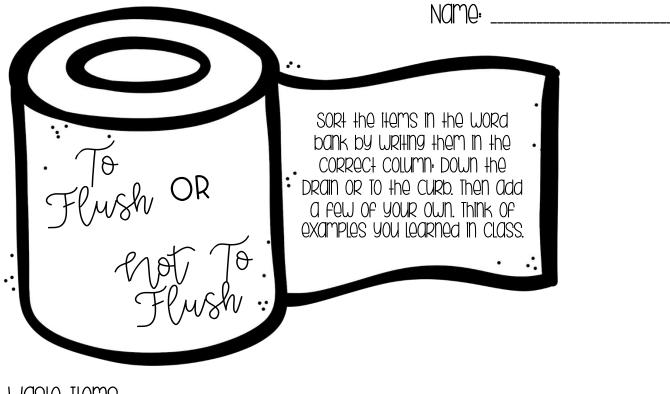
If you're encouraging students to do their own research, this is a good time to go over some research tips for success.

http://bit.ly/26tBhpT http://bit.ly/2jHkcKM

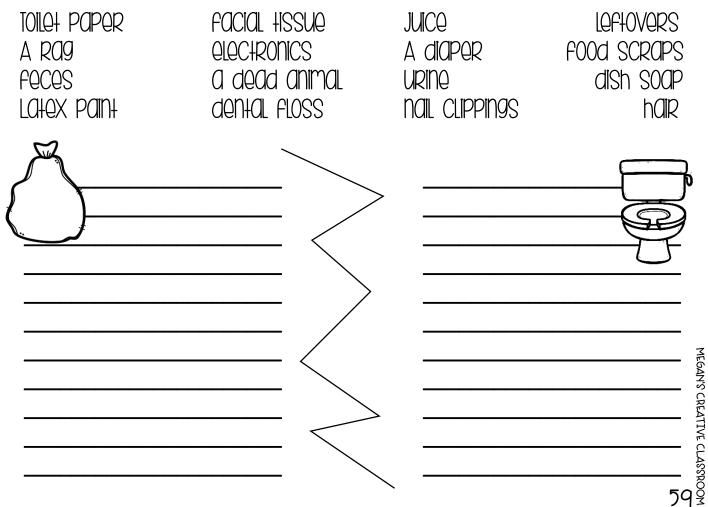
*Have you heard about Safe Search Kids? This kid—friendly browser includes pictures to help your students find information safely and quickly.

MEGAN'S CREATIVE CLASSROOM

http://bit.ly/2AR6EQ3 http://bit.ly/ILfGYA9



Waste Items:



Sewage IN MY COMMUNITY

where does the sewage at our water treatment plant come from?

How does the sewage get to the treatment plant?

HOW does the plant work so that our water comes out clean?

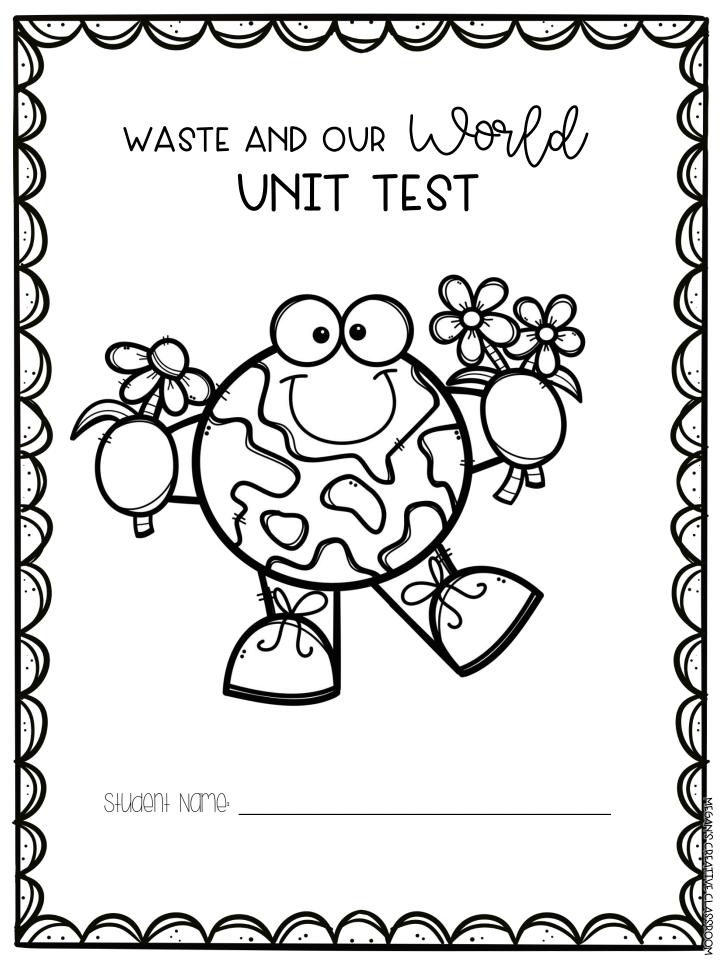
where does our clean water come from?

ARE there chemicals used to get our water clean?

IS there anything in our water that can be dangerous to our health?

what items can't be flushed, but often are?

MEGAN'S CREATIVE CLASSROOM



2. Fill in the chart below to describe methods of Waste disposal.

MQ+hOd OF dISPOSQL (Services or Types of Facilities)	ShORI DQSCRIPHON (what they do there, where it is, how it's useful, what we do to prepare our waste)	EXAMPLOS OF WASTO (waste items that go to each facility)

3. give one advantage and one disadvantage for each method of disposal above.

4. CIRCLE the items that are biodegradable.











5. How does reducing your personal waste help the environment?

C. GIVE TWO WAYS THAT YOU CAN REDUCE YOUR OWN WASTE.

7. Some items we use in our homes are "hazardous" or "toxic". Give two examples of this type of waste and explain how to dispose of each item. 8. The items below are made from recyclable items. What items or materials might have been recycled to make these items?

9. What is one thing that you've done to reduce your waste? How did you decide that it was important and How did you make sure to keep it going?

Waste and our World ANSWER KEY

- 1. Worms are decomposers. They consume, or eat, biodegradable materials and excrete them back into the soil. Worms move through the soil loosening it up and making it an ideal environment for new plants to grow.
- 2. Landfill – takes garbage that cannot be re-used and must be covered with top soil and stored underground – CD's, certain types of plastic, Styrofoam, coffee cups

Recycling Center – sorts, cleans and remakes recyclable materials into new items – plastic, glass, cardboard, metals, electronics

Eco-Station – household hazardous items are safely disposed of and re-used in some cases – paint, aerosol cans, lightbulbs, batteries

Waste Water – every flush, shower or sink-ful of water is treated at a water treatment facility so it can be safely returned to the river and re-used – human feces, urine, dishwater, rain water

3. Landfill: safely disposes of garbage; materials do not break down very quickly because air flow is minimal

Recycling Center: recycling materials uses less energy than creating new items; sorting items can be labor intensive

Eco-Station: household hazardous waste is disposed of safely; heavy loads can be costly to the public

Waste Water – our water is constantly being used and re-used and is treated before returning back to nature; some items cannot be removed from the water (medicines and chemicals)

- 4. Circled: paper, carrots, compost and leaves
- 5. Each of us has a carbon footprint – everything we use contributes to the pollution on Earth. Every time we make a change to reduce our waste it helps the planet by reducing the pollution created when making the product and the services needed to dispose of it too. (answers will vary)

Waste and our World ANSWER KEY

- 6. You can reduce your waste by:
 - Using both sides of the paper, or using scrap paper
 - Using less toilet paper
 - Avoiding using paper towels and paper products
 - Buying items at a second hand store
 - Taking shorter showers
 - Repairing broken items instead of purchasing new
 - (answers will vary)
- Leftover paint take to Eco station to be recycled or disposed of Engine oil – keep in old oil bottle and take to Eco station to be separated/cleaned and reused. (answers will vary)
- 8. Boxes, paper products may be recycled to make new paper products

Glass bottles and jars may be recycled to make new bottles or reflective paint

Plastics can be recycled to make new toys and fleece fabric

9. Answers may vary based on students' experiences.

WASTE AND OUR WORLD By Megan's Creative Classroom

Lessons and Outcomes Met

ALBERTA PROGRAM OF STUDIES OUTCOME	Lesson(s)
Identify plant and animal wastes, and describe how they are recycled in nature.	1, 2, 3, 6
Identify and classify wastes that result from human activity.	1, 2, 6, 7
Describe alternative methods of disposal, and identify possible advantages and disadvantages of each.	1, 2, 3, 4, 6, 7
Distinguish between wastes that are readily biodegradable and those that are not.	I, 2
Compare different kinds of packaging, and infer the relative advantages and disadvantages of that packaging (from consumer and environmental perspectives)	3
Identify methods of waste disposal currently used within the local community.	6, 7
Identify kinds of wastes that may be toxic to people and to the environment.	4, 7
Identify alternative materials and processes that may decrease the amount of waste produced.	3, 5, 6
Identify ways in which materials can be reused or recycled, including examples of things that the student has done.	3, 5, 6
Develop a flow chart for a consumer product that indicates the source materials, final product, its use and method of disposal.	6
Identify actions that individuals and groups can take to minimize the production of wastes, to recycle or reuse wastes and to ensure the safe handling and disposal of wastes.	2, 3, 4, 5, 6, 7
Develop and implement a plan to reduce waste, and monitor what happens over a period of time.	2,3

REVIEW Questions

What is plant and animal Waste?

HOW IS COMPOST CREATED? Why IS IT IMPORTANT?

HOW ARE decomposers important?

HOW ARE HUMAN WASHES SORIEDT

HOW CAN WE REDUCE OUR FOOTPRINT?

What are some examples of biodegradable items?

HOW does consumer packaging impact our footprint?

IS there a solution to help avoid producing too much waste?

How is waste disposed of in your community?

GIVE examples of hazardous household waste items?

Where do you take household hazardous items?

How can you re-use items before throwing them away?

HOW CAN YOU REDUCE YOUR WASHE?

HOW CAN YOUR SCHOOL REDUCE the WASte it CREATES?

What does reduce, reuse, recycle mean?

WASTE AND OUR WORLD

By Megan's Creative Classroom

Extra Links

Waste Management in Your Area Canada: https://www.wmcanada.com/ca/en Edmonton: https://www.edmonton.ca/programs_services/garbage_waste/edmonton-wastemanagement-centre.aspx Calgary: http://www.calgary.ca/UEP/WRS/Pages/Waste-and-Recycling-Services.aspx Mountain View County: http://www.mountainviewwaste.ca/ Beaver County: http://beavermunicipal.com/ Camrose County: http://beavermunicipal.com/ Camrose County: http://www.county.camrose.ab.ca/content/garbage-disposal Red Deer County: http://rdcounty.ca/158/Waste-Management-Facilities Sturgeon County: http://www.roseridge.ab.ca/ Greenview: http://mdgreenview.ab.ca/programs-services/departments/engineering/environmentalservices/regional-waste/ Others: Search Waste Management and Your Town/Municipality Name on Google!

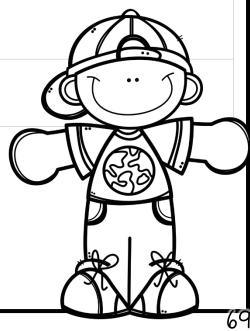
Composting

http://www.albertahomegardening.com/composting_made_easy_or_something_like_that/ https://www.albertaurbangarden.ca/tag/compost/ https://www.youtube.com/watch?v=dRXNo7Leky8 (video) http://www.ecofriendlykids.co.uk/composting.html http://your.caerphilly.gov.uk/kidsgogreen/activity_zone/get_composting http://www.kidsciencechallenge.com/year_four/zw_game.php (game) http://www.kidsciencechallenge.com/year_four/zw_game.php (game) http://www.kids.org/pbskidsgo/games/composing_compost.htm (game) http://www.mykidsadventures.com/five_fun_composting_projects_for_kids/ http://www.earthrangers.com/wildwire/wall_of_fame/

Reduce, Reuse, Recycle

https://kids.niehs.nih.gov/topics/reduce/

WHMIS (Chemical Hazards) http://www.ccohs.ca/teach_tools/chem_hazards/symbols.html



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