

# Grade 1 Energy in Our Lives Mini-Unit on Batteries

### **Overview**

This mini unit was developed to be a part of your Grade 1 science unit on **Energy in Our Lives**. Some of the lessons contained flow from one to the other but the Battery weighing lesson could be used at any point in the unit or indeed the year. However you may feel free to pick and choose or rearrange the lessons in any order to suit the needs of your classroom. Every effort was made to cite any external sources referenced. If I have missed any please let me know and I will make every effort to rectify the problem.

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### Lesson #1 - Introduction- Types of Energy

#### Ontario Curriculum connections:

Science:

Energy In Our Lives:

#### The Big Ideas

1. Everything that happens is a result of using some form of energy.

#### **Specific Expectations**

2.1 - Follow established safety procedures during science and technology investigations.

2.7 - **Use** appropriate science and technology vocabulary, including *explore, investigate, design, energy*, in oral and written communication.

3.1 - **Demonstrate** an understanding that energy is what makes the things they do or see happen.

3.2 - **Demonstrate** an understanding that the sun, as the earth's principal source of energy, warms the air, land, and water; is a source of light for the earth; and makes it possible to grow food.

3.3 - Identify food as a source of energy for themselves and other living things.

#### Language:

Oral Communication:

2.2 - **Demonstrate** an understanding of appropriate speaking behaviour in a few different situations, including paired sharing and small- and large- group discussions.

2.3 - **Communicate** ideas and information orally in a clear, coherent manner.

#### Supplies:

Any toys that use, build up, or store any type of energy.

• windup toys, pinwheels, flashlights, pullback cars, calculator (solar, battery, or both), spinning tops, rubber band airplane, etc.

### Activation:

Record the students' answers on a piece of chart paper.

- Ask the class what they think the word "energy" means.
- Ask the class where do they think energy comes from.
- Ask the class what are some different types of energy.



## Activity:

- In small groups let the students experiment with the different types of objects/toys, you've supplied them with. The goal being their trying to determine what gives the object/toy its energy.
- Have the class return to the large group and let each small group pick one or two of the objects/toys to present to the class and to explain how they think the object/toy gets its energy.
- Record their conclusions on a chart to display in the classroom, helping them with appropriate vocabulary to aid in their understanding.
- Using a picture from an object in the real world that uses the same type of energy as one of the toys used in class (i.e. a windmill for the pinwheel), challenge the students to explain how this real life object gets its energy.
- Follow-up questions: What does a car use for energy? A plant? What do you use for energy.

## Consolidation:

• Use the word search in Appendix 1.1 to help the students remember some of the words they heard in the lesson and to aid them in spelling them as well.



### Lesson #2 - Where We Use Energy In Our Homes

**Ontario Curriculum connections:** 

Science:

Energy In Our Lives:

#### The Big Ideas

- 1. Everything that happens is a result of using some form of energy.
- 2. Humans need to be responsible for the way in which we use energy.

#### **Specific Expectations**

1.1 - Describe their own and their family's uses of energy; identify ways in which these uses are efficient or wasteful, taking different points of view into consideration; suggest ways to reduce personal energy consumption; and explain why it is important for people to make these choices.
1.2 - Describe how the everyday lives of different people and other living things would be affected if electrical energy were no longer available.

#### Language:

Oral Communication:

1.2 - **Demonstrate** an understanding of appropriate listening behaviour by using active listening strategies in a few different situations.

2.2 - **Demonstrate** an understanding of appropriate speaking behaviour in a few different situations, including paired sharing and small- and large- group discussions.

2.3 - **Communicate** ideas and information orally in a clear, coherent manner.

## Activation:

- Ask the students to think about the the types of energy that they learned about in the previous lesson. Allow them to refer to their word searches if necessary.
- Ask for examples of things that use some of those types of energy.

## Activity:

- Using pictures of different rooms of the house (appendix 1.2 or use your own) ask students to tell the class what things in those rooms use energy and what types of energy, if they can.
- Record their responses on chart paper to display in the classroom. Appendix 1.3



- Are there any things or types of energy that you use in every room? Why do you think so?
- Are there any things or types of energy that are used in only one room? Why do you think so?
- What do you notice is the most common type of energy you use in your home? Why do you think so?
- Students can complete Appendix 1.4. The energy matching worksheet
- Answers for the matching sheet WILL vary. The discussion about why some things can be placed on more than one room correctly is an important one and should happen here or before the next lesson as the next lesson has to do with sorting by different attributes and there is no one right answer. The answers must be justified by the student.



### Lesson #3 - Battery Sort

#### **Ontario Curriculum connections:**

#### <u>Math:</u>

#### Data Management:

#### **Specific Expectations**

- **Demonstrate** an ability to organize objects into categories by sorting and classifying objects using one attribute (e.g., colour, size), and by describing informal sorting experiences.

### Activation:

- Remind students how some people put the same object into different rooms in the last activity.
- Remind them that this is perfectly alright so long as they have a justifiable reason for doing so.
- This activity assumes that your students have already done the math unit on sorting and are familiar with the term attributes when associated with objects.

## Activity:

- Place students into small groups (2-3).
- Each group should get an envelope with the pictures of batteries cut out from appendix 1.5.
- Instruct the students to sort the batteries into groups of their choosing by any one attribute that they want. (colour, size, shape, etc.)
- Once the students are complete give each group some sticky notes and have them move around the classroom and see the different ways that their peers sorted their batteries. Ask them to put a sticky note on any of the sorts that they are unsure of or have a question about.
- Have the students explain their thinking about how the batteries were sorted and have the group whose sort it was explain their thinking to the class.
- If no one puts any sticky notes down point out some interesting sort that you as the teacher saw or ones that you can ask some questions about to make the students think.

- Discuss the different attributes that each group came up with to sort their batteries.
- Ask if there were any other ways to sort the batteries that they did not see in the class.
- You could ask the students to try and sort their batteries using a different attribute.



### Lesson #4 - Weighing Our Batteries

Ontario Curriculum connections:

<u>Math:</u>

#### Data Management:

#### Specific Expectations

- **Collect** and **organize** primary data that is categorical, and **display** the data using one-to-one correspondence, prepared templates of concrete graphs and pictographs (with titles and labels), and a variety of recording methods.

- **Read** primary data presented in concrete graphs and pictographs, and **describe** the data using comparative language.

- Pose and answer questions about collected data.

\*\*\*\*This activity could be done anywhere during the year if your\*\*\*\* \*\*\*\*school is collecting batteries\*\*\*\*

Please feel free to choose your own timeline for keeping track of your batteries. My example will be weekly for a month(Appendix 1.6), but you can easily adapt the idea by the day or let it run over a longer period of time. Do whatever will fit best with your class and your situation.

## Activation:

- Wherever you are in your battery recycling campaign, beginning, middle, or near the end, you can use this activity as a way for your class to monitor their efforts in the challenge and can even track other classes if you wish.
- Remind your class of the challenge your school may be having within the school, and the contest that is going on between schools.
- Ask the students what they think a good way to measure the amount of batteries brought in would be. Many will probably say counting, but keep asking if they can think of a different way that would be quicker than counting. The idea here is to get them to start thinking about weight.

## Activity:

- Using a scale, or different types of scales (bathroom, luggage, etc.) weigh the batteries that your class brings in by the day or week.
- Track the amounts on a calendar or chart paper put up in the class so that the students can see their progress. You could track it on a pictograph as is outlined in the Grade One Math Curriculum.



- When you decide the graphing is complete ask students to explain what they see in the graph.
- Is there anything interesting they see in the pictograph? Do they have any questions about what they see?
- Are there any entries that are much lower than the norm, much higher? Why do they think that may be?
- Was there more participation at the beginning of the contest, the middle, ort the end? Why do they think?
- If you compared other classrooms to yours, why do they think certain classrooms brought in more than others.



### Lesson #5 - Battery Safety

**Ontario Curriculum connections:** 

#### Health and Physical Education:

Healthy Living - Personal safety and Injury Prevention:

#### Specific Expectations

**C1.2 - Demonstrate** an understanding of essential knowledge and practices for ensuring their personal safety.

There is actually quite a problem with children swallowing the little lithium button sized batteries, so here is a lesson to raise some awareness with the students to be careful for themselves and pass the word on to their parents and younger family members.

#### Supplies:

• Examples of little hard/soft candies (eg. tic tacs, rockets, swedish berries, etc.) and button batteries or pictures of button batteries.

### Activation:

- Show the kids the candies and ask them if they have ever tried them before.
- Ask them to describe the attributes of how the candies look and write them down on a piece of chart paper.
- Show them the button batteries and ask if they could be described by the same adjectives as the candies.
- Explain how they are different and explain that you are going to watch a short video on the dangers of those little button batteries

### Activity:

• Choose a video(s) on the dangers of button batteries and children to watch. Here are a few examples for you or you may source your own.

https://www.youtube.com/watch?v=f\_ahFOv4BMw

https://www.youtube.com/watch?v=p0O2MdoHdt4



- Discuss the video and ask the students to explain why button batteries are dangerous.
- Ask them what they think a baby, or a student in kindergarten might think of one of these types of batteries.
- Ask them how they think we could protect small children from swallowing these batteries.



## Lesson #6 - Battery Safety Poster

Ontario Curriculum connections:

#### Health and Physical Education:

Healthy Living - Personal safety and Injury Prevention:

#### **Specific Expectations**

**C1.2 - Demonstrate** an understanding of essential knowledge and practices for ensuring their personal safety.

#### Language:

Media Literacy:

3.1 - Identify the topic, purpose, and audience for media texts they plan to create.

3.3 - **Identify** conventions and techniques appropriate to the form chosen for a media text they plan to create.

3.4 - **Produce** some short media texts for specific purposes and audiences, using a few simple media forms and appropriate conventions and techniques.

## Activation:

- Remind students of the videos on the dangers of button batteries they watched previously and about their ideas for protecting other children.
- Ask if they think many people in the school or community know about the problem of children swallowing these batteries.
- Tell the class that they are going to make posters to warn people of the dangers of kids swallowing these batteries and ways to protect kids from this risk.

## Activity:

- Have the student think about ideas for what to depict on their posters and what message they would like to put on it. Who is their target audience? Kids or adults?
- Go over the requirements of a good poster: eye catching, neat, pictures, a strong message, etc. (Appendix 1.7 is a sample rubric for your use)
- Working in a large group get ideas and answers on a piece of chart paper for students to refer to when they begin to work on their own posters.
- Give the students their paper for a rough outline to build and try out their ideas on. Then go to their good copy

- Go back over the main ideas and risks discussed in lesson 5 or seen in the video(s).
- Hang the posters around the school or allow them to take them home to their families. Either ways encouraged them to discuss the issue with their families.



# Types of Energy

Z SBATTERY F X D M V V C S A X O P A FL SZASU 0 S ENERGYM 0 D WB UZCC B LL Т E L ECTRICP R R XZIAGGZ Т W Y HAXSHAW C Ι K R UYJUTSF N L WMTDNZXP D

BATTERY ELECTRIC ENERGY FOOD GAS LIGHT POWER SUN WIND

















Family Room	
Bedroom	
Garage	
Kitchen	
Bathroom	



# **Energy in Our Homes**

Cut out the energy using items and glue them under each room where they belong.

<u>Garage</u>

<u>Kitchen</u>



## **Bathroom**

## Family Room





Appendix 1.5





## **Battery Collection Pictograph**

Week 1	
Week 2	
Week 3	
Week 4	





CATEGORY	4	3	2	1
Title	Title can be read from 6 ft. away and is quite creative.	Title can be read from 6 ft. away and describes content well.	Title can be read from 4 ft. away and describes the content well.	The title is too small and/or does not describe the content of the poster well.
Graphics - Clarity	Drawings are all in focus and the content easily viewed and identified from 6 ft. away.	Most drawings are in focus and the content easily viewed and identified from 6 ft. away.	Most drawings are in focus and the content is easily viewed and identified from 4 ft. away.	Many drawings are not clear or are too small.
Graphics - Relevance	All drawings are related to the topic and make it easier to understand.	All drawings are related to the topic and most make it easier to understand.	All drawings relate to the topic.	Drawings do not relate to the topic.
Knowledge Gained	Student can accurately answer all questions related to facts in the poster and processes used to create the poster.	Student can accurately answer most questions related to facts in the poster and processes used to create the poster.	Student can accurately answer about 75% of questions related to facts in the poster and processes used to create the poster.	Student appears to have insufficient knowledge about the facts or processes used in the poster.
Mechanics	Capitalization and punctuation are correct throughout the poster.	There is 1 error in capitalization or punctuation.	There are 2 errors in capitalization or punctuation.	There are more than 2 errors in capitalization or punctuation.

