

# Resources at school and home

## Critical Challenge

### Critical question

What two natural resources provide the most important products found in the assigned room in your home?

### Overview

This challenge introduces students to natural resources and their products. Students list different products (e.g., pencils, books, chalk, desks) found in their classroom and collectively determine the resource(s) from which each is made. Students then research a room in their home, looking for ten different products and identifying the natural resource(s) from which each was produced. Students use a point system to judge the importance of the various products found in their home. Based on these calculations, students determine the two most important resources found in the home. As a concluding activity, students reflect on the role of natural resources in their lives.

## Objectives

### Broad understanding

As individuals we benefit in many diverse ways from the earth's natural resources.

### Requisite tools

#### *Background knowledge*

- understand difference between a natural resource and human-made product
- knowledge of natural resources used in classroom and household products



#### *Criteria for judgment*

- criteria for product importance (e.g., necessary to function, no easy substitutes)



#### *Critical thinking vocabulary*



#### *Thinking strategies*

- data chart
- point system



#### *Habits of mind*



# Suggested Activities

## Assemble sample resources

### Pre-planning

- In preparation for the introductory lesson in this unit, assemble samples of different types of natural resources. The following are suggested representations for each type of resource:

- trees                                      small branch
- plants                                    potted plant or cut stem
- minerals                                rock with iron ore (look for rust colour) or plastic bag with sand or gravel
- oil                                         glass jar with used automotive oil
- water                                     glass jar of water
- animals                                 stuffed toy or picture of animal  
(or air and land animals)
- fish (or sea animals)                clam shell or goldfish in bowl

### Session One

#### Blackline Master #1

## Introduce products and resources

- Open the lesson by asking students individually to make a written list of ten different products within the classroom. Explain that products are objects (not persons) that have been created or “produced” for use. When students have finished, create a master list of their suggestions on the left-hand side of the board. Title the list “Classroom products.” Then pose the rhetorical question “What are the sources in nature for these products?” or, put another way, “What are the basic natural materials from which these classroom products are made?” At this point draw attention to the samples of resources. Identify the resource each sample represents, and print the word along the top of the board to create a chart similar to the one depicted below. If possible, place the sample along a table or the blackboard ledge beneath the appropriate word.



*difference  
between resource  
and product*

### Assessing resources

Classroom products	Natural resources						
	trees	plants	minerals	oil	water	animals	fish
<i>desks</i>							
<i>pencils</i>							
<i>rulers</i>							
<i>blackboard</i>							

Write the topic “Natural resources” above the row of resources. Explain that all of these materials are called “natural resources.” A resource is something that is used to make a product. Note that the root of the word is “source” suggesting that a “re-source” is the source or starting place from which a product is developed. Explain that they are called natural resources because they are not made by humans but made in nature. Note that humans manufacture the products made from these natural resources. However, the division between natural and non-

natural resources is somewhat blurred: agriculture is not typically regarded as a natural resource because crops and cattle are cultivated, yet, so are fish (e.g., fish farms, oyster beds, hatcheries) and forests (e.g., replanted stands, forests sprayed with pesticides, tree farms, seed modification). At least initially, it may be easiest to draw a simple distinction between manufactured products and natural resources.

Consider most common sources

- Before proceeding as a class to record the source(s) for each product, ask students individually to write down their answer to the question: “Which are the two most commonly used natural resources in the classroom?” (i.e., “Which two natural resources are used in the most number of classroom products?”). Record the tally of students identifying each resource next to the appropriate word.

Identify sources of classroom products

- Beginning with the first item on the product list, ask students to identify the source or sources of each and place a check in the appropriate place(s) on the chart (e.g., pencil would have a check under “minerals” and “trees”). Place a check mark under the appropriate resource. Where an identified product is actually the composite of two or more products (e.g., the blackboard proper and its wooden ledge; a pencil case and its contents), treat them as two products. It may be necessary to explain that particular resources (e.g., lead, gold) fall into one of the existing categories (e.g., types of minerals) and, if desired, add new natural resources to the list (e.g., natural gas, air, soil, wind, sun). If students cannot identify a product’s natural source, you may want to provide the answer or assign the question as a library task. When all sources are identified, tabulate the frequency for each resource and discuss whether or not students were surprised to learn which natural resources are most common in classroom products.



knowledge of source of products

Introduce research on home products

- Draw students’ attention to the two most common resources in the classroom. Ask students to consider if these two types of natural resources would be the most common in other rooms, such as in bedrooms or kitchens? Announce that students are to research the most common resources found in products used in different parts of their home. Distribute to each student a copy of *Resources at home* (Blackline Master #1) and explain that everyone will have a specific room to investigate. Students are to list ten different products found in their assigned room and with the help of adults and books at

**Resources at home** Blackline Master #1

Name: \_\_\_\_\_

☐ garage/shed    ☐ work/study room    ☐ dining room    ☐ den/office    ☐ kitchen

☐ living room    ☐ bedroom    ☐ bathroom    ☐ other

Products I found ...	Natural resources they are made from ...

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Assign rooms  
in home

Discuss importance  
of products

Introduce the  
critical question

home identify the natural resource (or resources) making up each product. If the class has altered the categories of resources or introduced new types, direct students to make these changes on the top row of the Blackline Master. To avoid confusion, it may be useful to explain the sources of common fabrics—cotton (plants), wool (animals), silk (animals) and synthetics (oil)—and suggest that students identify the main ingredient only for products made of fabric.

- Allocate three or four students to investigate each room (the data chart lists eight specific rooms and has space for “other”). Since not every student will have a garage, tool room or laundry room, ask for volunteers for the more unique rooms before allocating the more common ones.

## Session Two

### Blackline Master #2

- Before students share the results of their home research, introduce the idea that some products may be more important than others. Refer to the classroom products identified in the previous session. For instance, would students agree that a globe was as necessary to a classroom as a pencil? Print across the board three levels of importance as indicated below.

very important	quite important	not important
(absolutely necessary)	(very useful to have)	(could easily do without)

Ask several students to select a classroom product, and to suggest how important it is and why. Help students see the relative importance of products by considering how well the classroom could function without that product or whether another product could easily be substituted.

- When students have grasped the idea of determining the relative importance of different products, ask them to offer a preliminary answer to the critical challenge:

*What two natural resources provide the most important products found in the assigned room in your home?*

Invite students individually to look quickly at the list of products they identified in their room and consider the importance of each product. Based on the importance of the products, ask them to decide which resources are most common in the important products. Ask students to write on the back of their sheet, their preliminary choice of the two resources that provide the most important products found in their assigned room. Explain that students will now work in groups to determine which resources are the most important.



data chart



criteria  
for product  
importance

**Explain  
procedure**

- [illegible]

— 702

### Introduce point system

- When all groups have compiled their lists, ask the class how they might determine which are the most important resources for their room. Encourage students to see the difficulty with simply counting the number of checks a resource receives on all three lists. If many unimportant products (e.g., plastic ornaments) were found in our homes then those resources may be rated more important than something we could not do without. Direct the discussion so students see the value of a rating or point system to determine relative importance (perhaps, three points for “very important” products, two points for “quite important” and one point for “not important”).



point system

### Tabulate results

- Distribute to each group one copy of the chart *Summary of importance* (Blackline Master #3). Explain that each group is to use this chart to summarize and total the importance of each resource found in their room. Walk the class through the following steps:
  - Add the number of checks for each resource on each of the three *Importance of products* sheets (Blackline Master #2).
  - Record the totals for each resource in the appropriate spaces on the *Summary of importance* chart (Blackline Master #3). In the example on the following page, “trees” would have received six check marks on the “very important” sheet.
  - Indicate the value or points that the class has decided to award for each level of importance under the word “Value”. In the example on the following page, “very important products” would have been assigned a value of three points.
  - Determine the points for each resource by multiplying the number of checks by the assigned value and recording the figure in the appropriate box. In the example, trees would receive 18 points for the “very important products” that it produces.
  - Add the points in the boxes for each resource and record the sum in the box at the bottom of the column.
  - Identify the two most important resources by looking to see which resources have the most number of points.



data chart

Blackline Master #3

Room \_\_\_\_\_

### Summary of importance

	trees	plants	minerals	oil	water	animals	fish
very important products	# of checks X assigned value =	# of checks X assigned value =	# of checks X assigned value =	# of checks X assigned value =	# of checks X assigned value =	# of checks X assigned value =	# of checks X assigned value =
quite important products	# of checks X assigned value =	# of checks X assigned value =	# of checks X assigned value =	# of checks X assigned value =	# of checks X assigned value =	# of checks X assigned value =	# of checks X assigned value =
not important products	# of checks X assigned value =	# of checks X assigned value =	# of checks X assigned value =	# of checks X assigned value =	# of checks X assigned value =	# of checks X assigned value =	# of checks X assigned value =
Total points							

Names: \_\_\_\_\_

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### Detail from “Summary of importance” chart

	trees
very important products	# of checks
	6
	x
	assigned value
	3
	= 18

#### Share results

- When all groups have completed Blackline Master #3, ask a member from each group to record their totals on the board or on a piece of poster paper. Prepare a chart such as the following to compile these results:

#### Sample chart of important resources found at home

Rooms	trees	plants	minerals	oil	water	animals	fish
<i>bedroom</i>							
<i>kitchen</i>							
<i>bathroom</i>							
<i>garage</i>							
<b>Total</b>							

#### Discuss the results

- When the statistics from all rooms have been recorded on the master chart, total the numbers for each resource and record the sum at the bottom of each column. Invite students to discuss what they notice about the chart and what surprises them. Questions to ask include:
  - According to this chart, what is the most important resource? second most important? third most? and so on?
  - Do the totals on this chart match students’ initial answers (recorded on the back of their *Resources at home* chart) as to the two most important resources?
  - Are some resources more important in every room or does the importance differ depending on the room?
  - What is the most interesting thing that students have learned from this activity?

#### Reflect on learning

- As a concluding activity, ask students to write a paragraph answering what they think about the role that resources play in their lives. Ask students to provide specific examples of resources and products to illustrate their ideas.



Assess knowledge of products and resources

Assess ratings of importance

Assess understanding of contributions

- Assess students' understanding of products and resources by looking to see that they have successfully completed the *Resource at home* (Blackline Master #1). If desired this assignment can be marked out of 20 by awarding one mark for each correctly identified product and one mark for each plausible guess as to the resource(s) from which each comes.

- Assess each group's rating of the importance of each product as recorded on their three sheets, *Importance of products* (Blackline Master #2), using the rubric found in *Assessing the ratings* (Blackline Master #4). According to this rubric the assignment is worth 10 marks and is assessed on two criteria:

- completion of activity;
- plausible ratings.

- Assess each student's paragraph on the role of resources in their lives using the rubric found in *Assessing the paragraph* (Blackline Master #5). According to this rubric the assignment is worth 10 marks and is assessed on two criteria:

- appreciation of frequent and diverse ways in which students benefit from natural resources;
- use of relevant specific examples to illustrate their ideas.

Name: \_\_\_\_\_

Use the following rubric to assess each group's classification of product importance. Award intermediate marks for answers falling between the descriptions.

### Assessing the ratings

Blackline Master #4

Completion of activity	Underdeveloped	Competent	Well developed
	Almost no products and resources are recorded.	About half of the identified products and their accompanying resources have been recorded.	Every identified product and accompanying resource appears to have been recorded.
Plausible ratings	1 Very few of the assigned levels of importance seem plausible.	3 Most of the assigned levels of importance seem somewhat plausible.	5 All of the assigned levels of importance seem very plausible.
Comments: _____		TOTAL /10	

Name: \_\_\_\_\_

Use the following rubric to assess student's appreciation of the role of resources in their lives. Award intermediate marks for answers falling between the descriptions.

### Assessing the paragraph

Blackline Master #5

Appreciation for contributions	Underdeveloped	Competent	Well developed
	No appreciation for either the frequent or different ways resources contribute to students' lives.	Some appreciation for either the frequent or different ways resources contribute to their lives.	Clear appreciation for both the frequent and different ways resources contribute to their lives.
Specific examples	1 No specific examples are provided; the paragraph is very general.	3 A few examples are provided; the paragraph is vague in spots.	5 Several very useful examples are provided; the paragraph is full of detail.
Comments: _____		TOTAL /10	

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# Resources at home

- ☐ garage/shed     ☐ work/tool room     ☐ dining room     ☐ den/office     ☐ kitchen  
☐ living room     ☐ bedroom     ☐ bathroom     ☐ other \_\_\_\_\_

Products I found . . .	Natural resources they are made from . . .

Names: \_\_\_\_\_

# Importance of products

Room \_\_\_\_\_

The products on this list are:

- ☐ **very** important (absolutely necessary)
- ☐ **quite** important (very useful to have)
- ☐ **not** important (could easily do without)

Products	trees	plants	minerals	oil	water	animals	fish		
TOTAL									

Names: \_\_\_\_\_

# Summary of importance

Room \_\_\_\_\_

	trees	plants	minerals	oil	water	animals	fish	
<b>very</b> important products	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>
<b>quite</b> important products	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>
<b>not</b> important products	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>	# of checks <input type="text"/> X assigned value <input type="text"/> = <input type="text"/>
<b>Total points</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

# Assessing the ratings

Use the following rubric to assess each group's classification of product importance. Award intermediate marks for answers falling between the descriptors.

	<b>Underdeveloped</b>	<b>Competent</b>	<b>Well developed</b>
<b>Completion of activity</b>	Almost no products and resources are recorded.  <b>1</b>	About half of the identified products and their accompanying resources have been recorded.  <b>3</b>	Every identified product and accompanying resource appears to have been recorded.  <b>5</b>
<b>Plausible ratings</b>	Very few of the assigned levels of importance seem plausible.  <b>1</b>	Most of the assigned levels of importance seem somewhat plausible.  <b>3</b>	All of the assigned levels of importance seem very plausible.  <b>5</b>

**TOTAL**      **/10**

**Comments:**

Name: \_\_\_\_\_

Blackline Master #5

# Assessing the paragraph

Use the following rubric to assess student's appreciation of the role of resources in their lives. Award intermediate marks for answers falling between the descriptors.

	<b>Underdeveloped</b>	<b>Competent</b>	<b>Well developed</b>
<b>Appreciation for contributions</b>	No appreciation for either the frequent or different ways resources contribute to students' lives.  <b>1</b>	Some appreciation for either the frequent or different ways resources contribute to their lives.  <b>3</b>	Clear appreciation for both the frequent and different ways resources contribute to their lives.  <b>5</b>
<b>Specific examples</b>	No specific examples are provided; the paragraph is very general.  <b>1</b>	A few examples are provided; the paragraph is vague in spots.  <b>3</b>	Several very useful examples are provided; the paragraph is full of detail.  <b>5</b>

**TOTAL**      **/10**

**Comments:**