

What Are Materials?



Focus: Students learn about materials based on similarities and differences and the objects they make.

Specific Curriculum Outcomes

Students will be expected to:

- 26.0 observe objects and describe their similarities and differences [GCO 1/3]
- 27.0 compare and describe properties of objects and materials [GCO 1/3]

Performance Indicators

Students will be expected to:

- identify familiar materials and the objects they are used to make
- describe some properties of materials
- communicate the similarities and differences between materials

NOTES:

Attitude Outcome Statements

Encourage students to:

- consider their observations and their own ideas when drawing a conclusion [GCO 4]
- appreciate the importance of accuracy [GCO 4]

Cross-Curricular Connections

English Language Arts

Students will be expected to:

- communicate information and ideas effectively and clearly, and to respond personally and critically [GCO 2]
- interact with sensitivity and respect, considering the situation, audience, and purpose [GCO 3]
- use writing and other forms of representation to explore, clarify, and reflect on their thoughts, feelings, experiences, and learnings; and to use their imaginations [GCO 8]

Getting Organized

Components	Materials	Before You Begin	Vocabulary
• Science Card 3 • Science Card 4 • BLM <i>Materials in the Classroom</i> • BLM <i>Venn Diagram</i> • IWB Activity 4	• students' Science Journals • students' Science Folders • small photo albums (one per small group)	• Print photographs of objects made of wood, plastic, metal, fabric, and glass from the Image Bank (see the Teacher's Website).	• human-made • material • natural • property

Safety

- Review school safety rules before students go on a neighbourhood walk.

Science Background

- Materials are divided into two broad categories: natural materials and human-made materials. Examples of natural materials are wood, cotton, silk, wool, sand, and slate. Examples of human-made materials include polymers (plastics, paints), metal, glass, and ceramics.
- Materials have unique properties. The knowledge of a material's properties allows scientists to select the best materials to suit various jobs and applications. It also helps engineers create new materials for new products and technological devices.

ACTIVATE



Recognizing Materials

Ask students to examine the images on Science Card 3. Point out and read aloud the title question: *Which materials do you see?* Point to the photos and ask students to look at them closely. Read the supplemental question: *What do materials look like?* Explain that the photos are of materials. Point to each photo individually and ask:

- **What material do you think it is?**
- **Why do you think that?**
- **What does it look like?**

Display Science Card 3 with labels (see the Teacher's Website) on the IWB and discuss each material with students. Explain that some materials are natural (come from nature) and some are human-made (manufactured by people). Ask:

- **Which of these materials are natural and which are human-made?**
- **What other materials can you think of which are not included on this page?** (fur, ceramic, wicker, cork, silk, bamboo, shell, foam, rubber, paint)



Which Materials?

Now ask students to examine the images on Science Card 4. Point out and read aloud the title question: *What can materials make?* Point to the photos and ask students to look at each image closely. Ask:

- **What is each object made of?**
- **Are any of the objects made from more than one material?**

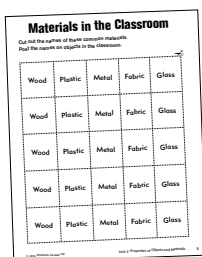
Have students work in pairs to compare Science Card 3 and Science Card 4. Ask:

- **Which objects are made from which material(s)?**

Encourage students to record their answers in their Science Journals.



CONNECT



Identifying Materials

Hand out BLM *Materials in the Classroom* to small groups of students. Tell the students to look for objects that are made from the materials listed (wood, plastic, metal, fabric, glass). Challenge each group to find at least three objects made of each material. They can affix the labels to objects around the classroom.

(As an extra challenge, have students figure out the best way to attach the labels. Tape is obvious and shouldn't harm surfaces, but clothespins could be used to affix labels to fabric, such as curtains.) Invite students to record their findings in the form of a simple chart, by drawing the objects and/or printing the names of the objects.

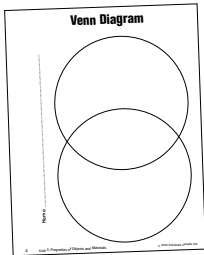
This sample chart is partially completed.

Wood	Plastic	Metal	Fabric	Glass
desk ruler	chair math counters	stapler magnetic tape	curtain rug	window vase

As a group, discuss why they think the objects in each column are made of that material. Ask:

- **Why is this material a good choice for this object?**

Add the words that students use to describe the materials (e.g., strong, soft, clear) to the Word Wall.

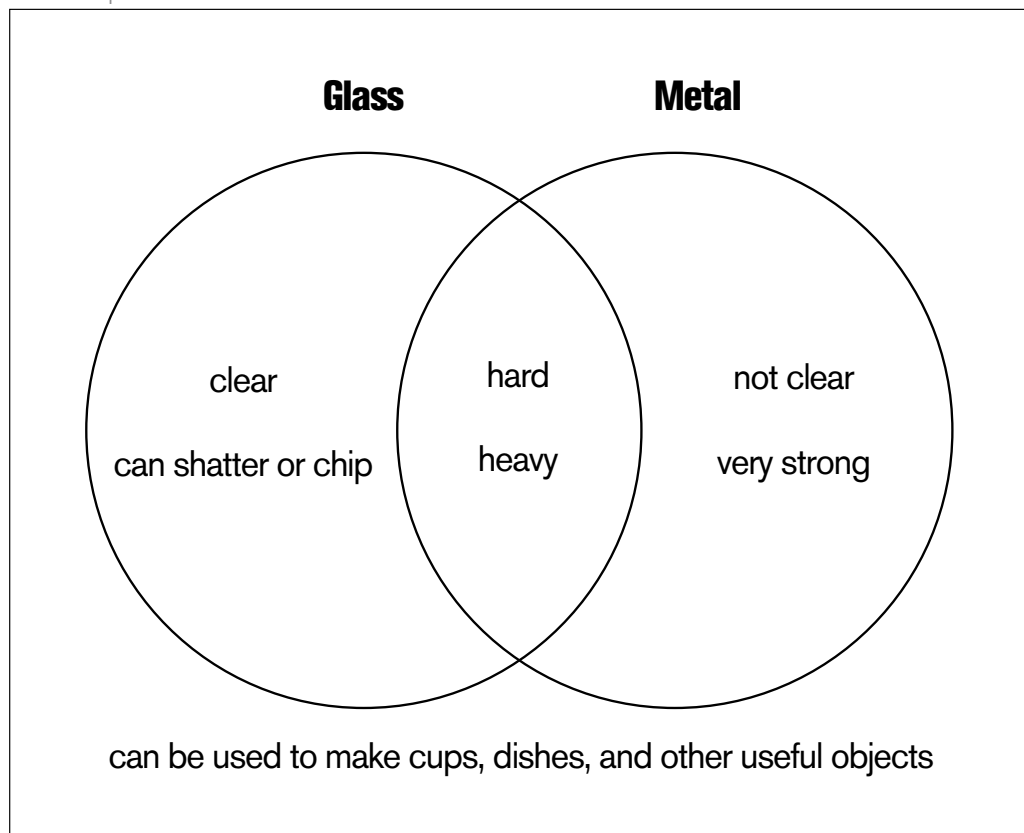


Comparing and Contrasting Materials

Draw two large intersecting circles on chart paper or on the IWB and invite students to help you create a Venn diagram using words and pictures to show how glass compares to metal. Ask:

- **What is the same and what is different about these two materials?**

Provide copies of BLM *Venn Diagram* and have students record the information on the BLM. Remind students to store their completed BLMs in their Science Folders.



Next, have students work in small groups to compare and contrast other materials, orally. Ask each group to list their points. Use the information to create additional Venn diagrams on the board or on the IWB.

CONSOLIDATE

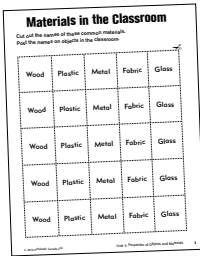


Photo Album

Provide printed photographs of objects from the Image Bank (see the Teacher's Website) and have small groups of students place their collection of photos into photo albums with the appropriate labels from BLM *Materials in the Classroom*. Guide students to recognize that materials can be used to make different objects, and some objects can be made from more than one material.

EXPLORE MORE

IWB Activity:

- Invite students to use slide one of Activity 4:
- *Matching materials* (see the Teacher's Website) to drag and drop the labels to match them to the correct objects. Using slide two, students drag and drop each item from the box to match a label.



Natural or Human-made?

Have students look around the classroom and identify some objects that are made by people. Next, take the students on a walk in the neighbourhood or in the school and collect objects made by nature. List the objects students find under either the heading "Objects Made by People" or "Objects Made by Nature."

Name That Material

Using the chart generated from the activity above, challenge students to name the material the objects under the two headings are made from. Students could write their answers on sticky notes and add them next to each object on the chart.

Materials in the Classroom

Cut out the names of these common materials.

Post the names on objects in the classroom.



Wood	Plastic	Metal	Fabric	Glass
Wood	Plastic	Metal	Fabric	Glass
Wood	Plastic	Metal	Fabric	Glass
Wood	Plastic	Metal	Fabric	Glass
Wood	Plastic	Metal	Fabric	Glass

Venn Diagram

Name: _____

