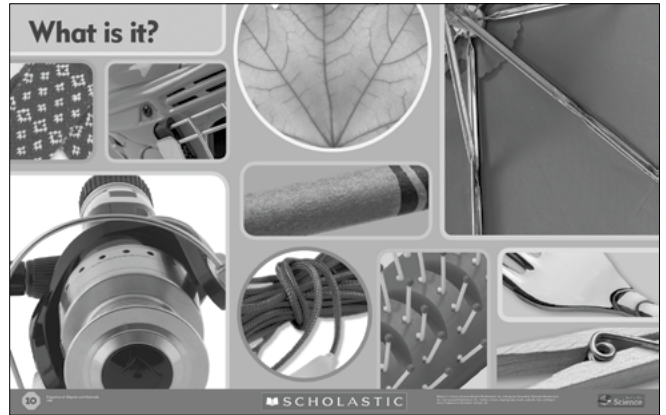




Specific Curriculum Outcomes

- 25.0 identify objects, how they are used, and for what purpose they are used [GCO 1/3]
- 27.0 compare and describe properties of objects and materials [GCO 1/3]
- 22.0 use appropriate tools [GCO 2]

Students who achieve these outcomes will be able to:

- NOTES:**

Attitude Outcome Statements

Encourage students to:

- be sensitive to the needs of other people, other living things, and the local environment [GCO 4]
- consider their observations and their own ideas when drawing a conclusion [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]
- select, read, and view with understanding a range of literature, information, media, and visual text [GCO 4]

Getting Organized

Components	Materials	Before You Begin	Vocabulary
• Science Card 9 • BLM <i>How Do We Use Objects?</i> • IWB Activity 8 • <i>What Is the Design Process?</i> poster • <i>The Magnificent Tree</i> (Read Aloud) • Science Card 10	• a variety of tools, for example: 1) workshop tools such as pliers, screwdrivers, measuring tape, a piece of sandpaper; 2) gardening tools such as a garden trowel, a watering can; 3) office tools such as a tape dispenser, a staple remover; 4) kitchen tools such as a pancake flipper, a bottle opener, a pizza cutter, an egg beater, measuring spoons • small boxes, pencils or straws, cardboard • students' Science Journals • <i>The Polar Bear in the Rock: Two Windows on the World</i>, by Derek Wilton (optional)		• invention • property • purpose • tool • use

Science Background

- Tools are specialized objects that are designed by humans to do specific tasks and to make certain jobs easier.

Possible Misconceptions

- Students may think that tools make people stronger. In fact, tools help people use their strength more efficiently, which saves energy and physical exertion.

ACTIVATE



What Are Tools?

Discuss the fact that some objects are made to help us do certain jobs, and that these objects are known as tools. Ask volunteers to find a tool in the classroom, hold it up, and describe what it does.

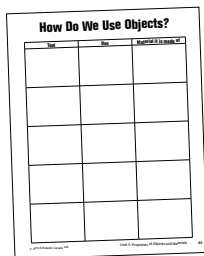
Show students Science Card 9. Read aloud the title question: *How do you use objects?* Tell students that there are a variety of objects shown on the card. Some are tools and some are regular objects. Ask:

- **What tools do you see?**
- **What are these tools used for?**
- **Which of these tools do you use?**

If students are struggling, ask:

- **What does the grater do? What's it for?** (helps us make food smaller, such as cheese or carrots, for cooking or baking.)
- **What does the plush dog do? What's it for?** (a toy, to cuddle and play with; it doesn't really do anything)

As a group make a list of the tools. Model how to complete the BLM *How Do We Use Objects?* With the students' help, fill in the first line with one of the tools from the card. Then give students their own copy of the BLM to complete.



Have students work individually or in pairs to fill in the chart. Circulate around the classroom, providing support as needed. Then complete a chart together, using the IWB.

How Do We Use Objects?

Tool	Use	Material it is made of
scissors	to cut paper	metal plastic

Examining Tools

Provide an array of tools from the workshop, kitchen, gardening shed, and school or office in different centres. (See Getting Organized on page 57 for suggestions.) Have students examine these tools in small groups. Use the following questions to discuss their function, design, and how they are used:

- What does this object do?
- What is it for?
- How does it work?
- Why is it shaped the way it is?
- How is it used?
- What is it made of? Why?

As much as possible, let the students use, or pretend to use, the tools. This will help them understand how to use the tools and in what circumstances.

IWB Activity:

- Students can use Activity 8: *Name that tool* slide 1 (see the Teacher's Website) to identify tools. Using slide 2, students match the appropriate tool to use with each object or in each situation.



You could set up a drama centre such as a bakery or a restaurant with all the required tools labelled and have students prepare pretend baked goods/meals.

CONNECT



Design a New Tool

Begin a discussion about engineers and tools. Talk about some tools that have changed our lives (e.g., the zipper or the telephone). Then explain to students that they will be designing a useful tool. Encourage them to think like an engineer and to be creative.

Tell students that engineers follow the Design Process. (Note: for this activity, students will complete only the first step in the process: identifying a problem and finding a solution.) Have students look at the *What Is the Design Process?* poster as you read it aloud. Remind students that the first step is to identify the problem, think of a solution, and make a plan. Ask:

- **What is the problem you want to solve?** (e.g., wet paintbrushes always get stuck together and don't dry properly when left in a cup)
- **How can you solve the problem?** (e.g., find a way to keep the brushes separate from each other so that they keep their shape and dry thoroughly)

Students can use the tools from the Examining Tools activity (see page 58) for ideas of tools that they could design to solve a problem they have identified.

Remind students to ask questions and gather information to find out more about the problem. Then ask them to think of a solution and draw it. Remind students about the notes and pictures that Pop drew in *The Magnificent Tree* to make a plan for his ideas. Students can work individually, in pairs, or small groups.

For this activity, the building and testing steps will not be completed. Tell students they'll have the opportunity to build an object later on in the unit.

Have students evaluate their design. Ask:

- **Are you pleased with your design?**
- **Did you add labels to your sketch?**
- **How will your new tool work?**
- **Would you like to make any changes to its design? What would these changes be?**

Ask for volunteers to share their designs with the class.

CONSOLIDATE



Describing Tools

As a class or in small groups, have students demonstrate the uses of different tools through role play. They can use the tools from the Examining Tools activity (see pages 58-59) or those shown on Science Card 9 for ideas. For example, a student might demonstrate how to use a whisk by pretending to beat an egg in a bowl. Another could use mime to demonstrate how to use a can opener with an imaginary can of tuna. Classmates can identify the tools and the action (e.g., a whisk “beats” eggs).

What Do You See?

Show students Science Card 10 and read aloud the title question: *What is it?* Invite students to play a game of What is it?. Explain that the photos are close-ups of actual objects/tools. Have students work in pairs to guess what each is, what it is used for, and what materials it is made of. (Answers and full photos of objects can be found on the Teacher’s Website.)



Close-up Look

Have students use a digital camera to take close-ups of common classroom objects, pieces of clothing, and/or kitchen gadgets. Have them take a large view of the object as well. Glue the close-up on one side of cardstock and the larger view on the other side. In pairs, students can guess the object from the close-up image and check the reverse to see if they are correct.

Alternatively, you or the students could use the images to create a slide presentation showing the close-up image followed by the large view of the object as the answer. You might also use the images to create an IWB activity.

EXPLORE MORE



Make a Car

Using small boxes, pencils or straws, and cardboard wheels, challenge students to make toy cars that move. (Pencils go through the box with room to turn and the cardboard wheels are attached to the pencil.) Students can record their plan in their Science Journals. Ask the students to take their cars home and explain and demonstrate to their families how they made them and how the wheels and axles work.

Reading Centre

You may wish to read aloud the picture book *The Polar Bear in the Rock: Two Windows on the World*, written by Derek Wilton (see page 87 of Additional Resources). Begin on page 4 and skip over the marginal text, which contains information about geology. Finish your reading on page 20 and ask students to identify the tools described and pictured in the story (kayaks, paddles, skin tents, *ulus* or knives, spears, and a *Kilautik* or shaman’s drum).

How Do We Use Objects?

Tool	Use	Material it is made of