

| Age Group | Percentage |
|-----------|------------|
| 18-24     | 10%        |
| 25-34     | 35%        |
| 35-44     | 25%        |
| 45-54     | 15%        |
| 55-64     | 10%        |
| 65-74     | 5%         |
| 75-84     | 2%         |
| 85+       | 1%         |



**Focus:** Students will be actively engaged in exploring various ways to join different materials.

## Specific Curriculum Outcomes

**Students will be expected to:**

- 29.0 explore ways to join materials [GCO 1/3]
- 8.0 communicate while exploring and investigating [GCO 2]
- 24.0 select and use materials to carry out their own explorations and investigations [GCO 2]

## Performance Indicators

**Students who achieve these outcomes will be able to:**

- name various joining materials
- investigate the best way to join materials together
- group materials by how they can be joined and/or what they can join
- test various joining materials

**NOTES:**

## Attitude Outcome Statements

### Encourage students to:

- show concern for their safety and that of others in carrying out activities and using materials [GCO 4]
- willingly observe, question, and explore [GCO 4]

## Cross-Curricular Connections

### English Language Arts

#### Students will be expected to:

- select, read, and view with understanding a range of literature, information, media, and visual text [GCO 4]
- create texts collaboratively and independently, using a variety of forms for a range of audiences and purposes [GCO 9]

## Getting Organized

| Components                                                                                                                                                                                                                                           | Materials                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Before You Begin                                                                | Vocabulary                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Science Card 7</li><li>• IWB Activity 7</li><li>• Science Card 8</li></ul> <p><b>Literacy Place:</b></p> <ul style="list-style-type: none"><li>• <i>Let's Make Cards</i> (Guided Reading, Level F)</li></ul> | <ul style="list-style-type: none"><li>• variety of familiar objects with fasteners</li><li>• variety of objects and materials to join (e.g., paper, paper bags, aluminum foil, beads, blocks of wood, buttons, cardboard, fabric, foil plates, paper plates, paper towel rolls, pencils, plastic containers and lids, craft sticks)</li><li>• variety of joining materials/fasteners (e.g., different types of tape and glue, elastic bands, stapler and staples, buttons, pipe cleaners, plastic ties, zippers, wool, ribbon, shoelaces)</li><li>• students' Science Journals</li><li>• tools such as scissors, colouring pencils, crayons, markers, paint and brushes</li></ul> | <ul style="list-style-type: none"><li>• Create and display a T-chart.</li></ul> | <ul style="list-style-type: none"><li>• describe</li><li>• fasten</li><li>• property</li></ul> |

## Science Background

- Objects have many parts which have to be joined together.
- There are a number of ways to join parts together: different types of tape and glue, nuts and bolts, nails, rope, buttons, zippers, thread, Velcro.
- Sometimes parts are attached to objects with the aid of fasteners, for example, buttons are fastened to shirts with thread. Fasteners range from simple early types to more sophisticated ones.
- Zippers, buttons, buckles, barrettes, clips, pins, laces, snaps, staples, paper clips, are all different types of fasteners we see and use every day.

## Possible Misconceptions

- When investigating ways to join or fasten materials, students may become focused on the types of fasteners used on clothing. This lesson will help them broaden their thinking and appreciate the different ways to join materials and the wide variety of fasteners available in hardware stores, stationery stores, and in sewing supply stores.

## ACTIVATE

### Examining Joins

With the class, develop a list of ways that materials are joined together. Students may suggest gluing, taping, tying, or clipping materials together. Glue, tape, yarn, string, thread, paper clips, binder clips, hair clips, zippers can all be used to join materials together. Challenge students to think of other joining materials and add their suggestions to the list. Ask:

- **What else could you use to join materials?**



### Literacy Place Connection:

*Let's Make Cards* (Guided Reading, Level F) demonstrates how to make cards. Discuss with the students the different materials that were used and what was used to join them (glue). Invite students to suggest other materials and fasteners that could be used to make cards.

### Putting It All Together

Provide a variety of familiar objects that are joined together in some way for the students to explore. These items could include clothes, toys, shoes, furniture, backpacks, books, food storage containers, or supply cases. Ask:

- **How are these objects put together?**
- **How are the materials joined?**
- **What joining materials are being used?**

Add the way these objects are joined together to the class list. Students could also examine objects in the classroom that are joined together and add the joining materials to the list.

### Joining Materials

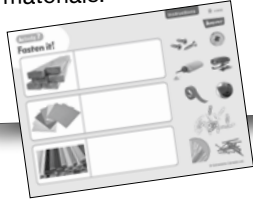
Ask students to look at Science Card 7. Read aloud the title question: *How do you join materials?* and have pairs of students discuss the various fasteners shown on the card. Read the supplemental question: *What can you join with these fasteners?* Prompt discussion by asking questions such as:

- **What do you see that can join materials?**
- **What materials can they join?**
- **How can they join them?**



### IWB Activity:

- Students can use
- Activity 7: *Fasten it!*
- (see the Teacher's
- Website) to identify
- fasteners that can be
- used to join various
- materials.



As a class, create a T-chart of the different materials that can be joined with the fasteners featured on the science card (e.g., hammer and nails are used to join wood; brass fasteners and paper clips are used to join paper, buttons and zippers are used to join clothes, and so on). Record each fastener on one side of the T-chart and the materials that can be joined with it on the other side.

### What Are You Wearing Today?

Designate different parts of the classroom for different numbers of fasteners students are wearing (laces, Velcro, buttons, zippers, hair clips). Ask students to stand in the area that matches how many fasteners they are wearing. Make a list of how many students have which number of fasteners. Discuss the role fasteners play in clothing and shoes (makes things easier/faster to put on, stays attached).

Make a list of all the different fasteners students are wearing and create a bar or pictograph of the number of students wearing each kind of fastener.

## CONNECT

### Exploring Fasteners

Provide groups of students with a variety of materials (be sure to include paper), different types of tape (plastic, masking, painter's, packing, electrical, duct, double-sided) and glue (all purpose, craft, super, spray, glitter, rubber cement, and glue stick). Encourage students to explore and test how the tapes and glue join the different materials. As they explore, model asking questions that can lead to exploration and investigation:

- Which materials are you trying to join?
- How are you trying to join them?
- Why are you trying this method?
- What are some other ways that you could join the same materials?
- How could you conduct a test to see which way is best?



Let the students know that they should take notes and draw pictures about what they learned in their Science Journals so that they can share their findings with the rest of the class and refer back to these notes when they make their own paper bag puppet.

When the students have finished exploring, discuss as a group their findings and what tapes and glue they would recommend to use to join materials.

## CONSOLIDATE

### Making Paper Bag Puppets

Show students Science Card 8. Read aloud the title question: *How will you make a puppet?* Explain to students that they will be making paper bag puppets. Have students look at the puppets featured on the card and examine the ways these puppets may have been put together. Read the supplemental questions: *What materials will you use? How will you join them?*



Provide students with an assortment of objects and materials that they could use to make a paper bag puppet (e.g., paper bags, buttons, cardboard, construction paper, craft sticks, tapes, glues, elastic bands, stapler and staples, buttons, pipe cleaners, plastic ties, zippers, wool, ribbon, shoelaces) and other common craft tools (scissors, colouring pencils, crayons, markers, paint and brushes).

Challenge students to design and build a paper bag puppet. As they think about their design, ask:

- **What materials will you use to make your puppet?**
- **How will you join your materials?**
- **What do you think is best to use for the puppet's eyes/hair/mouth? How will you attach that?**
- **What else could you add to your puppet?**

### **Presenting and Testing Puppets**

After the students have finished their puppets (and they are ready to be tested), ask them to present their puppets to the class. As a group, discuss the methods used by students to join the pieces.

- **How well did your method work?**
- **Did you change any materials or joining methods while you were working on your puppet?**
- **What did you learn?**
- **What would you recommend to others?**

Now ask students to test their puppets and discuss any new findings:

- **Put your hand in the puppet and shake it around quickly. Did anything fall off?**
- **What would you change?**
- **If it stayed together, what did we learn?**

Give students the chance to rethink and repair the construction of their puppet. Ask:

- **Did you think there is a better way to build your puppet? What is it?**
- **Why do you think that way will be better?**

## **EXPLORE MORE**

### **Make a Bracelet**

Invite students to make their own small models of a simple bracelet using different objects and fasteners (e.g., beads and string, elastic bands, paper clips, construction paper and tape, or anything else they choose that could make and fasten a bracelet). You might challenge students who are ready to create a repeating pattern in their bracelets.