

Grade	Subject	Strand	Time
Grade 1	Mathematics	Data Management and Probability	50 minutes

Brief Description

This lesson provides students with an opportunity to practice sorting objects into categories. Students will first participate in a whole-class activity that involves sorting the class' shoes based on their attributes. Students will then work individually to sort pictures of footwear from the Bata Shoe Museum's collection. When finished, students will share their work with the class and discuss the ways in which sorting skills can be applied to everyday situations.

Desired Results and Preparation

The Big Idea/Essential Question

Objects can be organized into categories based on their similarities.

Overall Curriculum Expectations

- Collect and organize categorical primary data and display the data using concrete graphs and pictographs, without regard to the order of labels on the horizontal axis.

Specific Curriculum Expectation

- Demonstrate an ability to organize objects into categories by sorting and classifying objects using one attribute, and by describing informal sorting experiences.
- 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.

Prior Knowledge Needed

- Basic understanding of materials and structures
- Familiarity with the artifacts in the Bata Shoe Museum's "All About Shoes" exhibition

Materials Needed

- Teacher's shoe
- Students' shoes
- Hula-hoops
- Strips of paper
- Markers
- 1 legal-sized paper per student
- 1 set of pictures per student, cut out and ready to use (Appx. A)
- Glue sticks
- Pencils

The Lesson

Hook (15 minutes)

Student Grouping: Whole class

1. Bring students to sit in a circle.
2. Ask students to take off one shoe and place it in front of them in the circle.
3. Take off your own shoe and show it to the class. Describe your shoe's appearance, feel and function (e.g. *"This is my shoe. I wear it because it is comfortable to walk in all day. It is brown and red, and has laces along the top. My shoe is soft and smooth because it is made out of leather. I wear this shoe on my left foot..."*).
4. Ask two or three students to introduce their shoe in a similar way. For each student, ask questions to prompt their description and investigation of their shoe. As students are describing their shoe, point out some similarities and differences between their shoe and the other shoes presented to the class (e.g. *"Your shoe is red – just like my shoe and Lamar's shoe"* or *"Your shoe has Velcro straps, but Susan's shoe and my shoe have laces"*).
5. Explain that although every shoe is different, they are similar in some ways, too. These similarities can be used to organize the class' shoes.
6. To start, pick a simple sorting criterion such as left-foot and right-foot shoes. Place two hula-hoops next to each other in the circle and use a strip of paper to label each hula-hoop (e.g. "left shoe" and "right shoe").
7. Go around the circle and ask students to place their shoe in the appropriate hula-hoop. If a student is unsure, ask the class to help them decide.
8. When everyone's shoe is sorted, reiterate how the class' shoes are now organized into groups based on one similarity. Ask students if this similarity is the only one among the class' shoes. Ask students to suggest other similarities between the shoes (e.g. color, function, texture, etc.), and if there are other ways to organize the class' footwear.
9. Get students to retrieve their shoes. Then, repeat the activity with one or two of their suggested sorting criteria.

Introduction (5 minutes)	Student Grouping: Whole class
<ol style="list-style-type: none"> 1. Explain that students will now have a chance to sort shoes on their own. 2. Explain that every student will get a piece of legal-sized paper and a set of shoe pictures (Appx. A). Review the pictures with students and see if they recognize them from their fieldtrip to the Bata Shoe Museum. 3. Explain that students will need to look at the pictures and find similarities in the shoes – just like they did in the previous activity. They will then sort the pictures into groups and glue them on a piece of paper. They will then label each group of pictures with a pencil (e.g. “tall shoes”). Explain that there are many ways to sort the shoe pictures and that everyone’s work may be different. 4. Model the activity for students with a ‘think aloud’, if necessary. 	
Body (20 minutes)	Student Grouping: Individually
<ol style="list-style-type: none"> 1. Hand out materials and let students carry out the activity at their desks. Circulate to offer support and guidance, and make observational notes for assessment. 	
Conclusion (10 minutes)	Student Grouping: Whole class
<ol style="list-style-type: none"> 1. Ask students to come together and sit in a circle with their work. 2. Ask two or three students with interesting sorting strategies to share their work with the class. Ask them to explain their sorting process and rationale to the class. 3. Conduct a brief whole-class discussion by asking students what they learned about organizing objects. Ask students if they can think of other activities they do at home or in class that helps practice their sorting and organizing skills. 	
Extra Components	
Warm-Up	
<ul style="list-style-type: none"> • Take a class fieldtrip to the Bata Shoe Museum. Explore footwear from around the world and investigation the materials used to create them! • Introduce the class to the concept of sorting by asking them to organize very basic objects or pictures (e.g. different colored shapes). 	
Extension	
<ul style="list-style-type: none"> • Sort the photographs again as a class and create bar graphs to represent each grouping (e.g. when sorting the shoes by color, graph the number of shoes in each category - “7 pairs of red shoes, 2 pairs of blue shoes, 1 pair of green shoes, and 5 pairs of brown shoes”). 	
Modifications and Accommodations	
<ul style="list-style-type: none"> • Instead of using the photographs provided, teachers can also take pictures of their students’ shoes or use photos from magazines, newspapers and the internet. • Consider pairing students to complete the lesson’s activity. This will help ELL students develop their language skills and provide lower-achieving students with a mentor to will reinforce learning concepts. 	
Assessment	
<ul style="list-style-type: none"> • Formative assessment: (1) observational notes during the activity and (2) assessing student’s work at the end of the lesson. 	

Appendix A

Footwear from the Bata Shoe Museum

