



Activity 14.17 WHICH SILO HOLDS MORE?

Take two sheets of construction paper. Make a tube shape (cylinder) from one sheet by taping the two long edges together. Make a shorter, fatter cylinder from the other sheet by taping the short edges together. Ask, "If these were two silos, would they hold the same amount, or would one hold more than the other?" Survey students first to see how many select each option. To test the conjectures, use a filler, such as beans. Place the skinny cylinder inside the fat one. Fill the inside tube and then lift it up, allowing the filler to empty into the fat cylinder. Surprising to many, the volumes are different, even though the sizes of the papers holding the filler are the same. Ask students to investigate why this is true.

The goal of these activities is for students to realize that volume does not dictate surface area, but that there is a relationship between surface area and volume, just as there is between perimeter and area—namely, that cubelike prisms have less surface area than long, narrow prisms with the same volume.

Once students have developed formulas for computing area and volume, they can continue to explore the relationships between surface area and volume without actually building the prisms.

From Van de Walle et. al. (2014). *Teaching Student-Centered Mathematics: Developmentally Appropriate Instruction for Grades 6 – 8* (2nd Ed.). Toronto: Pearson Education, Inc. (p. 319).