

# Scaled Newspaper Structures

- A. Build a structure made of pieces of newspaper. The structure must have an inside and an outside. One of the dimensions (either height, width, or length) of Structure A must be exactly 45 cm. The structure must have strength. You can use up to 72 pieces of paper to make the structure. Each piece of paper is one ninth the size of a full sheet of Sunday newspaper. You can get 9 pieces of paper by cutting a full sheet of Sunday newspaper into three equal lengths, and then cutting each of these lengths into three equal rectangles. You may use up to 3 meters of tape in making the structure. You can fold, roll, crumple, or stack the pieces of paper.

After you make Structure A, discuss what worked, what caused problems, what changes you made during the building process, any surprises, and what you think you learned.

- B. Build a small structure made of pieces of newspaper. The pieces of paper used in this construction are one-ninth the size of the pieces used to build the first structure. Start with eight of the rectangular papers used in A. Cut each piece into three lengths, and then cut each length into three equal rectangles. Again you can use up to 72 of the rectangles to make this Structure B. This structure must have strength. One of the dimensions (either height, width, or length) of Structure B must be exactly 20 cm. You may use up to 1.5 meters of tape in making the structure. You can fold, roll, crumple, or stack the pieces of paper.

After you make Structure B, discuss what worked, what caused problems, what changes you made during the building process, any surprises, and what you think you learned. Compare your experience in making the two different structures.

- C. Build a large structure made of sheets of newspaper. The pieces of paper used in this construction are the full sheets from a Sunday newspaper. You can use up to 72 full Sunday newspaper sheets to make this Structure C. This structure must have strength. One of the dimensions (either height, width, or length) of Structure C must be exactly 180 cm. You may use up to 12 meters of tape in making the structure. You can fold, roll, crumple, or stack the pieces of paper.

After you make Structure C, discuss what worked, what caused problems, what changes you made during the building process, any surprises, and what you think you learned. Compare your experience in making the three different structures.

Which of the following statements do you agree with and why?

Changing scale just involves making things bigger or smaller.

Changing scale causes more changes than just making things bigger or smaller.

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