

STRAWS AND SHAPES

Performance Standard (9A/9B).C

Identify the two-dimensional representations of three-dimensional objects and build three-dimensional objects of two-dimensional representations of shapes accordingly:

- *Mathematical knowledge:* identify two-dimensional representations of 5 three-dimensional objects; build three-dimensional objects of 5 two-dimensional representations; describe where two and three-dimensional shapes are seen,
- *Strategic knowledge:* use appropriate strategies to build three-dimensional shapes, and
- *Explanation:* explain completely and clearly what was done to identify and build the shapes and why it was done.

Procedures

1. *In order to demonstrate and apply geometric concepts involving points, lines, planes, and space (9A) identify, describe, classify and compare relationships using points, lines, planes, and solids(9B)*, students should experience sufficient learning opportunities to develop the following:
 - Identify, draw and build polygons.
 - Identify and build a three-dimensional object from two-dimensional representations of that object.
 - Apply geometric ideas and relationships to problems that arise in the classroom or in everyday life.
2. Provide each student with a copy of the “Straws and Shapes” recording sheets. Have students review and discuss the task to be completed and how the rubric will be used to evaluate it.
3. Have students complete the assessment task as follows on the recording sheets:
 - Part A: write the names of the two-dimensional shapes that represent the 5 three-dimensional objects.
 - Part B: using straws and twist ties, build the three-dimensional objects for the 5 two-dimensional shapes.
 - Part C: write about places where two- and three-dimensional shapes are seen.
 - Part D: write everything done to complete all parts of the task and why it was done.
4. Evaluate each student’s work using the rubric as follows and use the guide on the rubric to determine the performance level:
 - 4 = all shapes were identified and built correctly; all strategies were appropriate; all explanations were clear and complete
 - 3 = either identification or building of objects included minor errors; strategical errors were minor; explanations were either partially unclear or incomplete.
 - 2 = both identification and building of objects included minor errors; most strategies were inappropriate; most explanations were unclear or incomplete.
 - 1 = identification and building of objects included major errors; strategies were inappropriate; explanations were unclear and incomplete.
 - 0 = task not attempted.

Examples of Student Work follow

Time Requirements

- Two class periods

Resources

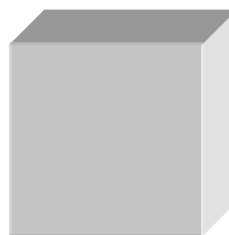
- Copies of the “Straws and Shapes” recording sheet
- Straws and twist ties for each student
- Mathematics Rubric

NAME _____ DATE _____

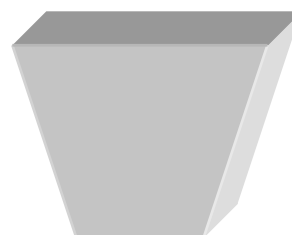
STRAWS AND SHAPES – Part A

Part A: Identify each shape and write the two-dimensional shape it represents.

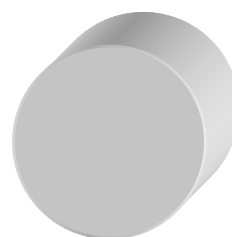
1. _____



2. _____



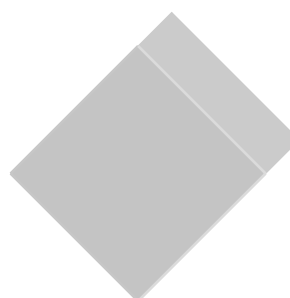
3. _____



4. _____



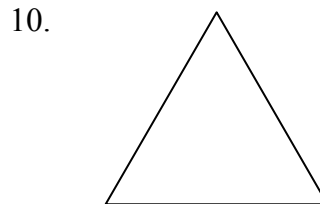
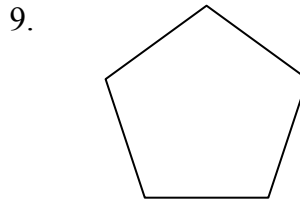
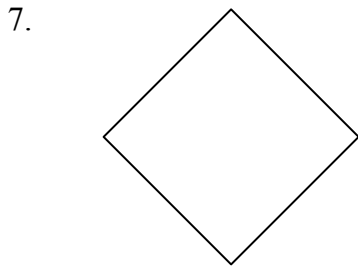
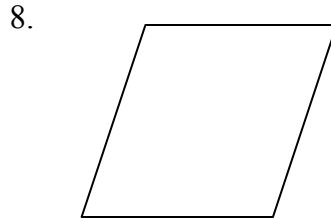
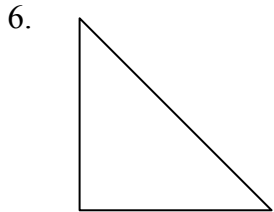
5. _____



NAME _____ DATE _____

STRAWS AND SHAPES – Parts B, C, and D

Part B: Using straws and twist ties, build three-dimensional shapes from the following two-dimensional representations.



Part C: Think about where you see two and three-dimensional shapes. Write about some of the places where you see shapes.

Part D: Write about everything that you have done in this task. Be sure to include why you did each step.

NAME _____

DATE _____

STRAWS AND SHAPES – Part A

Part A: Identify each shape and write the two-dimensional shape it represents.

1. square



2. trapezoid



3. circle



4. triangle



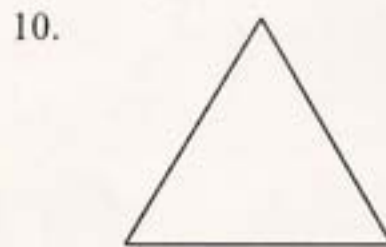
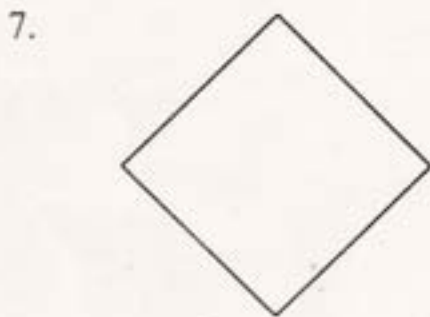
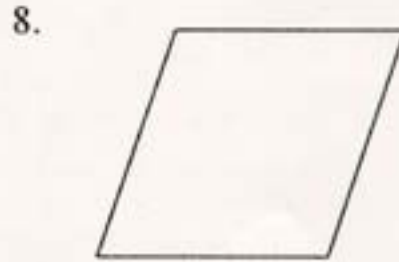
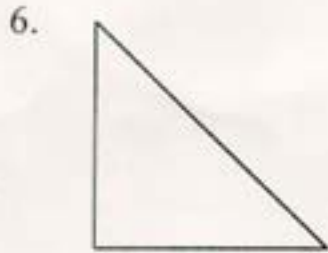
5. square



NAME _____ DATE _____

STRAWS AND SHAPES – Parts B, C, and D

Part B: Using straws and twist ties, build three-dimensional shapes from the following two-dimensional representations.



Part C: Think about where you see two and three-dimensional shapes. Write about some of the places where you see shapes.

At school I see a box which is a cube, at home I see a refrigerator which is a rectangular prism, in outer space I would see planets which are spheres, and at a warehouse I see boxes which are cubes.

Part D: Write about everything that you have done in this task. Be sure to include why you did each step.

Math Assessment (9A/9B).C
Part B

10.



6.



7.



8.



9.



10.