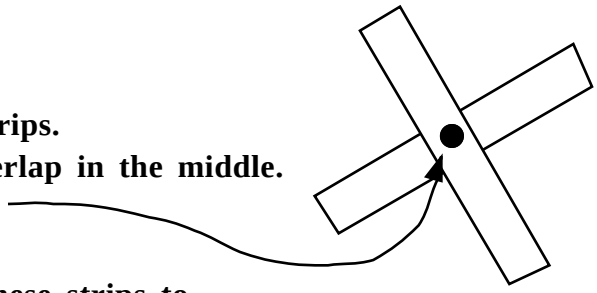
1. Geometry/Measurement — Grade 6

Angles, Lines & Line Segments
G/M-4, G/M 11

Materials: ruler
circular protractor
cardboard strips
brass tack fastener



1. You need two cardboard strips.
Place them so that they overlap in the middle.
Attach with the fastener.

2. Explain how you can use these strips to construct perpendicular lines.

3. Draw a pair of perpendicular lines.
How can you check to make sure that they are perpendicular?

4. In your own words define perpendicular lines.

5. Use the materials that you have to draw a pair of parallel lines.
Explain your strategy.
How can you check to make sure that they are parallel?

6. In your own words define parallel lines.

7. Robin claims to understand lines! She says that lines can either be perpendicular or parallel. They are always one or the other.

Sandy disagrees. She says that lines can either intersect or never meet.

Whom do you agree with and why?

When you have completed this station,
place answer sheet in your portfolio
and put you construction in a safe place to be used later .
Label your portfolio entry.

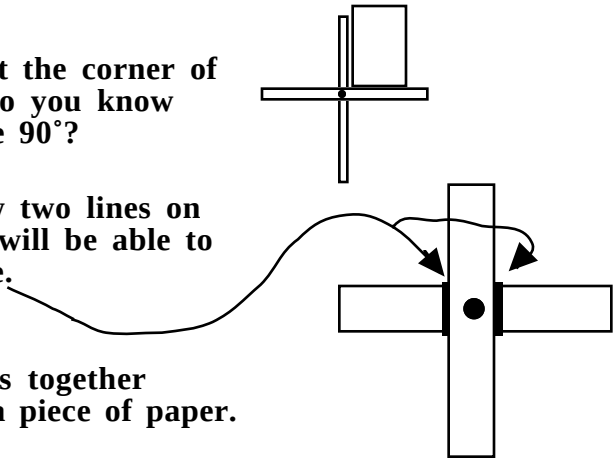
Please tidy up the station.

2. Geometry/Measurement Grade 6

Angles, Lines & Line Segments
G/M-1c, G/M-2, G/M-6

Materials: ruler
circular protractor
strips from station one
paper 6 cm x 8 cm
geometry set
carpenter's square

1. You will need the set of two cardboard strips that you used at station one.



a) Place your strips against the corner of your text book. How do you know that this angle has to be 90˚?

b) Use your pencil to draw two lines on your strips so that you will be able to use these as a reference.

c) Carefully hold the strips together and trace the angle on a piece of paper.

d) Use the protractor to measure the angle.

e) What do we call these angles?

f) Use your strips to find five other examples of right angles in the classroom. Record these.

g) How could you fold the small piece of paper to produce a right angle?

h) Which instrument in a geometry set is designed to help you draw right angles?

How do carpenters use a tool similar to this to determine if the wall meets the floor at right angles?

Use the carpenter's square to determine if the walls in your classroom are "square" with the floor and if the corners where the walls meet are square. Report your findings.

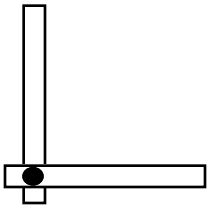
When you have completed this station, place answer sheet in your portfolio and put your construction in a safe place to be used later .
Label your portfolio entry.
Please tidy up the station.

3. Geometry/Measurement Grade 6

Angles, Lines & Line Segments
G/M-1c, G/M-2

Materials: ruler
circular protractor
cardboard strips
brass tack fastener

1. You need two cardboard strips.
Place them so that they overlap at one end.
Attach with the fastener.



2. Use your construction to draw

- **a. a right angle**
- **b. an obtuse angle**
- **c. an acute angle**

3. Make the following chart on your answer sheet and fill in.

angle	definition	examples in real life
right ∠		
acute ∠		
obtuse ∠		

When you have completed this station, place answer sheet in your portfolio and put your construction in a safe place to be used later .
Label your portfolio entry.

Please tidy up the station.

4. Geometry/Measurement Grade 6

Angles, Lines & Line Segments
G/M-2, G/M-5, G/M-6

Materials: ruler
circular protractor
strips from station three
paper 6 cm x 8 cm

1. Use the strips you constructed in station three to draw and label the following angles:

a) about 45˚

b) about 30˚

c) about 60˚

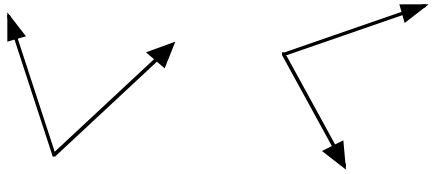
d) about 135˚

e) about 120˚

2. Measure to see how close you were. Record the real measure of the angle beside the label for each drawing.

3. How can you fold the small rectangular piece of paper to form a 45˚ angle?

4. Write three ways you could use to determine which if the following angles is larger.



5. Lee says that these two angles are not the same. Why do you agree or disagree?

When you have completed this station, place answer sheet in your portfolio and put your construction in a safe place to be used later .
Label your portfolio entry.

Please tidy up the station.

5. Geometry/Measurement

Polygons Gr. 6
G/M-11, G/M-13a,b

Materials: colored paper strips
glue stick

1. a. Use the colored strips to construct each of the following shapes. Glue them on white paper.

a) parallelogram

b) trapezoid

c) isosceles trapezoid

d) rhombus

b. Beside each shape that you glued give step by step directions on how to make it.

c) Give at least three real life examples of each shape.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

6. Geometry/Measurement

Polygons **Gr. 6**
G/M-13b

Materials: Pattern blocks

1. a. Use different blocks to make 10 different pentagons. Draw to record your solutions.

b. Are any of the pentagons regular pentagons? How is a regular pentagon different from a pentagon?

2. a. Use different blocks to make 10 different hexagons. Draw to record your solutions.

b. Are any of the hexagons regular hexagons? How is a regular hexagon different from a hexagon?

3. a. Use different blocks to make 10 different octagons. Draw to record your solutions.

b. Are any of the octagons regular octagon? How is a regular octagon different from a octagon?

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

7. Geometry/Measurement

Polygons **Gr. 6**
G/M-13b

Materials: Print resources from the library
Information from a car licensing issuer or a driver trainer

1. Find road signs, sketch them and name their shapes.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

8. Geometry/Measurement

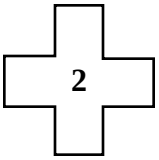
Polygons Gr. 6
G/M-16a

Materials: shapes for tracing

1. Trace shape #1 five times and cut out.

a. Fold two to form two different congruent pieces.
b. Fold one to form three congruent pieces.
c. Fold one to form four congruent pieces.
d. Fold one to form eight congruent pieces.
<u>Draw a sketch for each to report your solution.</u>

2. Trace shape #2 five times and cut out.



a. Fold one to form two congruent pieces.
b. Fold one to form four congruent pieces.
c. Fold one to form five congruent pieces.
d. Fold one to form eight congruent pieces.
e. Fold one to form ten congruent pieces.
<u>Draw a sketch for each to report your solution.</u>

3. In your own words, write the definition of "congruent".

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

9. Geometry/Measurement

Polygons Gr. 6
G/M-1b, G/M-13, G/M-16a

Materials: toothpicks
pattern blocks
dotted paper

1. What is the smallest number of toothpicks necessary to construct two congruent triangles?

2. How many congruent shapes are there in a hexagon? Use the pattern blocks and draw to record your solutions.

3. a) Use the dotted paper to draw the following quadrilaterals:

a parallelogram	**an isosceles trapezoid**
a rhombus	**a kite**
a square	**a rectangle**

b) Draw the diagonals and determine if the resulting triangles are congruent.

4 What is a simple test for "congruency".

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

10. Geometry/Measurement

Polygons Gr. 6
G/M-18

Materials: graph paper
computer draw program (optional)

1. a) Use the graph paper to draw a polygon.

b) Draw two polygons the same shape as the one you have just drawn:

i. one smaller

ii. one larger

c) What ratio did you use in each case?

2. How could you draw polygons that have the same shape using a draw program on the computer?

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

11. Geometry/Measurement

Polygons Gr. 6
G/M-16, G/M-24, G/M 28-b

Materials: geoboard
dot paper

1. a) Use the geoboard. Construct a polygon on one half of the geoboard.

b) Flip this figure over and construct it again on the other side of the geoboard. Record on dot paper.

c) How can you determine if the two polygons are congruent?

2. a) Repeat step 1 a).

b) This time slide the figure and make it again on the geoboard. Record on dotted paper.

c) How can you determine if the two polygons are congruent?

3. a) Repeat step 1 a).

b) This time turn the figure and make it again on the geoboard. Record on dotted paper.

c) How can you determine if the two polygons are congruent?

4. How does flipping, sliding, and turning a figure affect the size and shape of that figure?

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

12. Geometry/Measurement

Polygons **Gr. 6**
G/M-28a

Materials: works of art
magazines, newspapers
etc.

1. Examine the materials provided at this station. Find examples of these transformations:

reflections **translations** **rotations**

2. Explain why you chose the examples you did to represent each of the transformations.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

13. Geometry/Measurement

Polygons Gr. 6
G/M-28, G/M-29

Materials: sheet with polygons
scissors
ruler

1. Copy the chart below on a piece of paper.

name of polygon	no. of lines of symmetry	sketch: lines of symmetry	exhibit symmetry through rotation?
1.			

2. For each polygon provided, determine the number of lines of symmetry and determine if each polygon exhibits symmetry through rotation.

3. What strategy did you use to determine the line of symmetry?

4. How did you determine if the polygon exhibited symmetry through rotation?

When you have completed this station,
place answer sheet in your portfolio
Label your portfolio entry.

Please tidy up the station.

14. Geometry/Measurement

Polygons Gr. 6
G/M-30

Materials: laminated cards
scissors
tracing paper

1. Use the tracing paper to determine if the centre of rotation has been correctly drawn on each card. Record.

2. Draw a figure. Choose a centre of rotation. Draw two images of the figure that rotate around that centre of rotation.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

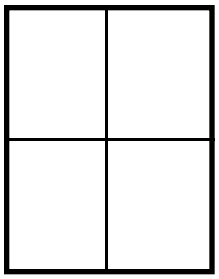
Please tidy up the station.

15. Geometry/Measurement

Polygons Gr. 6
G/M-32

Materials: pattern blocks
paper

1. Draw a vertical and a horizontal line through the centre of the paper



2. Use a few pattern blocks to create a figure in one of the quadrants.

3. Record by tracing around the pattern blocks.

4. Use the pattern blocks to make the images of that figure in each quadrant that are symmetrical relative to the line between it and the original figure.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

16. Geometry/Measurement

Polygons **Gr. 6**
G/M-32

Materials: paper
pattern blocks

1. Use a sheet of paper and draw a point in the middle of the paper.

2. Use the pattern blocks to create a symmetrical pattern relative to that point. Trace to record.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

17. Geometry/Measurement

Polygons Gr. 6
G/M-28, G/M-33

Materials: activity sheet with border
pattern blocks

1. Use a combination of reflections, rotations, and translations to make a creative pattern on a picture frame.

Choose one of the activity sheets provided.

You can trace the pattern blocks or you can make your own shapes.

Also use color effectively to enhance your pattern.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

18. Geometry/Measurement

Polygons Gr. 6
G/M-34, G/M-35

Materials: paper
pattern blocks

1. Using the pattern blocks to cover the surface of a sheet of paper.

Tessellate a pattern.

Do not leave any gaps between the shapes.

Trace to record.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

19. Geometry/Measurement

Polygons Gr. 6
G/M-34, G/M-35

Materials: cardboard or construction paper
shaped crackers

1. Using the crackers to cover the surface of cardboard.

Make a pattern.

Do not leave any gaps between the shapes.

Glue the crackers to record.

When you have completed this station,
post your creation on the bulletin board.

Label your portfolio entry.

Please tidy up the station.

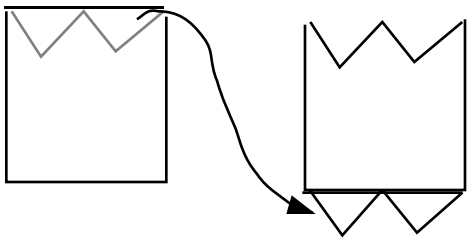
20. Geometry/Measurement

Polygons **Gr. 6**
G/M-35

Materials: 4 cm x 4 cm piece of manila tag
scissors
tape
sheet of paper

1. Change the shape without changing the area of the square.

For example: **cut**



join and tape
do not overlap
or
leave a gap

2. Tessellate the shape that you have created through a translation to make a pattern.

3. Enhance your pattern by using several colors or shading.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

21. Geometry/Measurement

Space Gr. 6
G/M-37, G/M-38

Materials: geometric solids
activity sheet

1. Examine each shape and fill-in the chart provided on the activity sheet.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

22. Geometry/Measurement

Space **Gr. 6**
G/M-40

Materials: triangulation paper
shapes provided by the teacher
pattern blocks

1. a. Select two of the shapes provided.

b. Use the triangulation paper to draw each of the figures.

c. Use the pattern blocks to reproduce your drawing. Trace around the blocks to record.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

23. Geometry/Measurement

Length Gr. 6
G/M-45, G/M-46

Materials: **rulers**
metre sticks
road maps

1. Name three things that are usually measured in each of the following units:

millimetres

centimetres

metres

kilometres

2. Name a benchmark that helps you remember about how long each of the following is:

1 mm **1 cm** **1 m** **1 km**

3. Name an object or a distance that is about

a) **1 mm in length**

b) **10 mm in length**

c) **1 cm in length**

d) **10 cm in length**

e) **1 to 2 metres in length**

f) **250 kilometres in length**

When you have completed this station,
place answer sheet in your portfolio
Label your portfolio entry.

Please tidy up the station.

24. Geometry/Measurement

Length **Gr. 6**
G/M-47

Materials: cardboard strips
ruler
measuring tape
metre stick

1. Measure the cardboard strips and record in two different units.

2. Give the dimensions of your classroom in metres and in centimetres.

3. Measure the height of the door and record using metres, centimetres and millimetres.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

25. Geometry/Measurement

Length Gr. 6
G/M-45, G/M 48

Materials: envelope with "regular polygons"
envelope with "irregular polygons"
ruler

1. a Measure and calculate the perimeter of each of the shape in the envelope labelled "regular" polygons.

b. Draw each of the following:

i. a square whose perimeter is 48 cm

ii. an equilateral triangle whose perimeter is 27 cm.

c. In your own words explain how to quickly calculate the perimeter of a regular polygon.

2. a Measure and calculate the perimeter of each of the shapes in the envelope labelled "irregular" polygons.

b. Draw each of the following:

i. three different rectangles whose perimeter is 48 cm

ii. a trapezoid whose perimeter is 27 cm.

c. In your own words explain how to calculate the perimeter of an irregular polygon.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

26. Geometry/Measurement

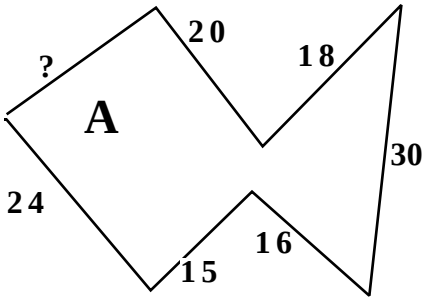
Length Gr. 6
G/M-54, G/M-55

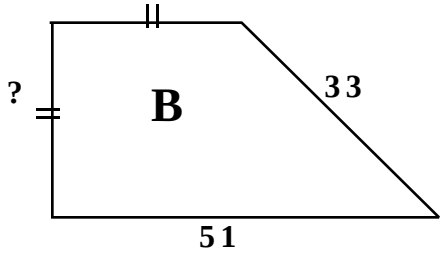
Materials: 6 pattern blocks: one of each color
calculator

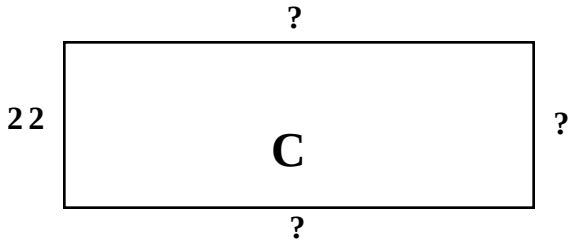
1. Use the six pattern blocks to make a figure. Measure and calculate the perimeter.

2. Make another shape using the same pattern blocks. Measure and calculate the perimeter.

3. Each of the following shapes has a perimeter of 134 cm. Calculate the measure of the side that is not labelled.







When you have completed this station,
place answer sheet in your portfolio
Label your portfolio entry.

Please tidy up the station.

27. Geometry/Measurement

Length Gr. 6
G/M-54, G/M 55

Materials: 5 circular objects
string
measuring tape
ruler
calculator

1. a Make the following chart on your answer sheet.

b Measure and calculate the diameter and the circumference of each of the circular shapes.

c. Record by filling in the chart. For the last entry in each case divide the circumference by the diameter.

name of object	circumference	diameter	circumference ÷ diameter

2 Write about the relationship between the circumference and the diameter of a circle?

When you have completed this station,
place answer sheet in your portfolio
Label your portfolio entry.

Please tidy up the station.

28. Geometry/Measurement

Area Gr. 6
G/M-59. G/M-61

Materials: base ten blocks
interlocking cm cubes

1. Explain how you can use the base ten blocks to demonstrate how many cm^2 equal 1 m^2. Show your work by drawing a diagram.

2. Indicate

a. 3 real-world applications for area using m^2.

b. 3 real-world applications for area using cm^2.

c. 3 real-world applications for area using m^2.

d. 3 real-world applications for area using hectares.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

29. Geometry/Measurement

Area Gr. 6
G/M-62, G/M 64a

Materials: card board square and rectangle

1. Suppose that a friend of yours does not understand how to calculate area of squares and rectangles. Use the square and the rectangle to write a step by step explanation on how to calculate each area. Remember to be clear because this person does not understand what to do.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

30. Geometry/Measurement

Area Gr. 6
G/M-62, G/M 64a
G/M 65, G/M 69

Materials: squares from the pattern blocks
grid paper

1. a) Use the blocks to construct a square whose length of the side is double that of one square.

b) Use the blocks to construct a square whose length of the side is triple that of one square.

c) Use the blocks to construct a square whose length of the side is four times that of one square. Record the area of each.

length of side	1	2	3	4	5	6	7	8
area								

2. Can you predict what the area will be if there are 5 units, 6 units, 7 units or 8 units on one side?

3. Draw a 2x3 rectangle on the grid paper. Draw a rectangle whose lengths of the sides are double the first one. . . triple the first one, and quadruple the first one. Record the area.

length of side	1	2	3	4	5	6	7	8
area								

4. In each case tell what happens to the area when the length of the sides is doubled? . . . tripled? . . . quadrupled?

When you have completed this station,
place answer sheet in your portfolio
Label your portfolio entry.

Please tidy up the station.

31. Geometry/Measurement

Area Gr. 6
G/M-66a

Materials: paper 21 1/2 cm x 28 cm
scissors
tape
calculator

1. The dimensions of a cube are 10 cm x 10 cm x 10 cm. You want to cut out 6 squares of white paper to cover the cube. How many sheets of paper 21 1/2 cm x 28 cm will it take to cover 2 identical cubes?

Explain your strategy.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

32. Geometry/Measurement

Area Gr. 6
G/M-58, G/M-63
G/M-67

Materials: interlocking cubes
tiles
graph paper

1. a. A rectangle has an area of 48 units.

Use the materials provided to show how many rectangles there are that have this area. Record your work.

b. Explain why the area does not change even though the shape has changed.

2. Make up two problems involving area and answer them.

When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

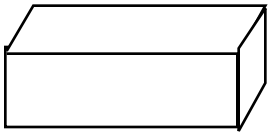
33. Geometry/Measurement

Volume Gr. 6
G/M-40, G/M-73a

Materials:

1. You have been asked to write an activity sheet for a math centre. Use rectangles and parallel lines to draw a rectangular prism at the top of your answer sheet. Label the prism with letters.

Give the step by step instructions for calculating the volume of a rectangular prism.



When you have completed this station,
place answer sheet in your portfolio

Label your portfolio entry.

Please tidy up the station.

34. Geometry/Measurement

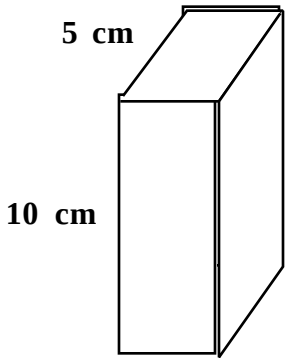
Volume Gr. 6
G/M-66, G/M-70
G/M-74, G/M-75

Materials: boxes

1. a) Sketch and give the dimensions of three of the boxes.

b) Give the surface area and the volume of these boxes.

2. If the volume of this shape is 200 cm^3, what is its width?



3. Make up three problems involving volume and answer them.

When you have completed this station,
place answer sheet in your portfolio
Label your portfolio entry.

Please tidy up the station.