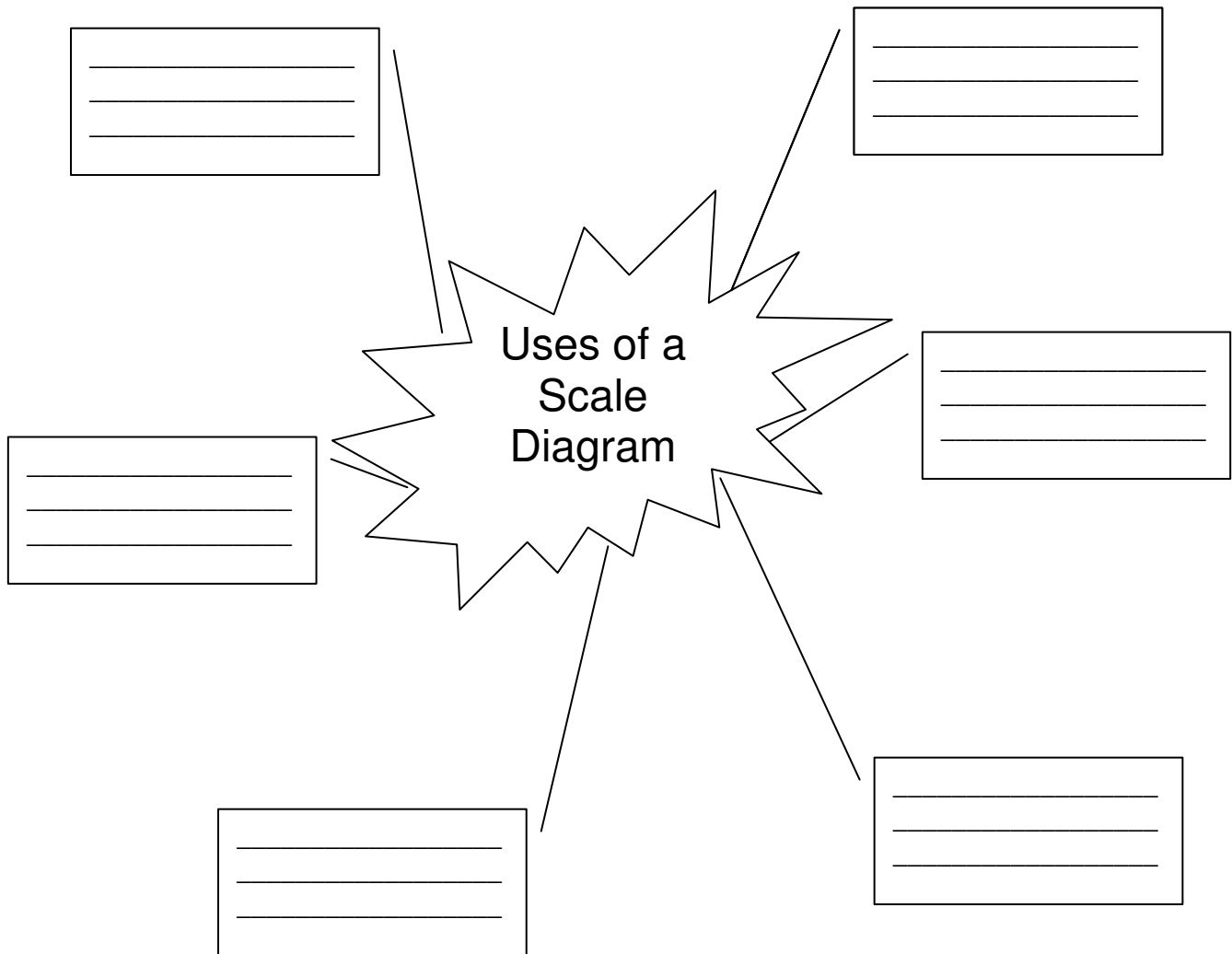




## Diagnostic Activity

1. Complete the mind map by answering the question:

When (or where) are Scale Diagrams used?





## Scale it Down

Suggested Time: 60 minutes

### What's important in this lesson:

In this lesson, you will learn to construct scale diagrams using Metric or Imperial units.

### Complete the following steps:

1. Read through the lessons on your own.
2. Complete all questions provided.
3. If you have any questions, ask your teacher.
4. Check your answers with the teacher.

### Hand in the following:

1. Diagnostic Activity
2. Practice Problems
3. Scale It Down Evaluation

### Questions for the teacher:



## Scale It Down

### Scale Diagrams

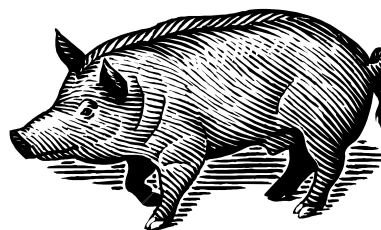
A **Scale Diagram** is a drawing that is an enlargement of a small object, or a reduction of a large object.

### Example



Red Blood Cells

Enlargement  
(Cells can not be seen by the human eye)



Pot Bellied Pig

Reduction  
(A pot bellied pig can grow to 65 cm in height)

### Drawing Scale Diagrams

Step 1 – Measure all actual sizes. Create a chart for all required measurements.

Step 2 – Choose a scale  
For Example: 1 square is 50cm.

Step 3 – Calculate Number of Squares to use on diagram. Write in your chart.

Item	Actual Size	Number of Squares needed on Diagram
		Scale: 1 square : 50 cm
Length of room	300 cm	$300 \div 50 = 6$
Width of room	150 cm	$150 \div 50 = 3$

Step 4 – Use grid paper and a ruler to draw the scale diagram.

Step 5 – Record the scale on the drawing

Scales can be written using a colon.

1 square : 50 cm

➤ *By using grid paper, both Metric and Imperial can be used.*



Practice

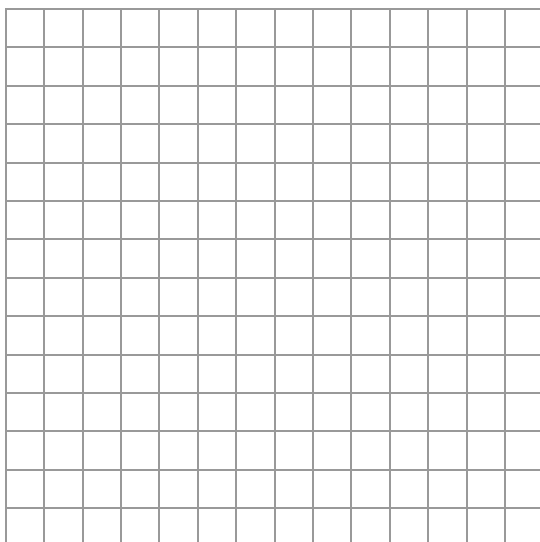
- Complete the chart below.  
The scale is 1 square : 2 feet

Item	Actual Size	Number of Squares Needed on Diagram
Length of Cabin	24 ft	
Width of Cabin	20 ft	
Length of Kitchen	12 ft	
Width of Kitchen	6 ft	
Length of Bedroom	10 ft	
Width of Bedroom	10 ft	

- Use the grid below to draw a line of the required length.

The scale of the diagram is 2 squares : 1cm

- a) 4 cm      b) 2.5 cm      c) 6 cm      d) 2 cm





## Scale It Down Evaluation

It's time to redecorate your room.

Your parents have given you a budget of **\$1000**, to refurnish your room.

You have been researching the cost of bedroom furniture and now have to make some decisions about what to buy and where to place your purchases.

Your bedroom is 4.0 m by 3.5 m.

Step 1 – Decide which furniture to purchase – Stay within your budget!

- Use the attached research
- FYI – You may purchase a sofa-bed in place of a bed and a chair

Step 2 – Record the Item you chose, the Actual Size of Length and Width, and the Price, in the chart.

Step 3 – Create a scale diagram of your room

- Use the graph paper given
- Determine an appropriate scale (if needed, ask your teacher for help)
- Calculate the Number of Squares needed on Diagram; write in the chart
- Create your scale diagram – Use a RULER
- Label and colour your diagram

Step 4 – Determine the total cost (including taxes) of your new room



Chart

Item Choice # and Name	Actual Size		Number of Squares Needed on Scale Diagram	Price
Bed	Length			
	Width			
Chair	Length			
	Width			
Dresser	Length			
	Width			
Desk	Length			
	Width			
Desk Chair	Length			
	Width			
Total Price				\$
Taxes (PST + GST)				
<b>Total Cost (with taxes)</b>				





### Bedroom Furniture Research

Bed #2  
Size: single  
Cost: \$469  
Length: 2 m  
Width: 1.5 m

A simple wooden bed frame with a light blue mattress and a white pillow.

Sofa-Bed  
Cost: \$599  
Size of bed  
Length: 2.0 m  
Width: 1.25 m

A dark blue sofa with a light blue mattress and a white pillow, designed to function as a bed.

Desk Chair  
Cost: \$39  
Length: 0.75 m  
Width: 0.75 m

A bright red office chair with a black base and casters.

Bed #1  
Size: single  
Cost: \$448  
Length: 2 m  
Width: 1 m

A wooden bed frame with a light blue mattress and a white pillow.

Chair #2  
Cost: \$130  
Length: 0.75 m  
Width: 1 m

A wooden armchair with a dark blue cushion and a white pillow.


Dresser # 1  
4 Drawers  
Cost: \$249  
Length: 0.5 m  
Width: 1 m

A wooden dresser with four drawers and a light-colored top.

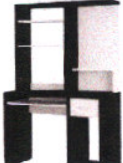
Dresser # 2  
6 Drawers  
Cost: \$179  
Length: 0.75 m  
Width: 0.5 m

A wooden dresser with six drawers and a light-colored top.

Desk # 1  
Length: 1m  
Width: 1.5 m

A wooden desk with a light-colored top and metal legs.

Desk #2  
Length: 0.5 m  
Width: 1.0 m

A black desk with a white top and a small white shelf.

Chair #1  
Bean Bag  
Cost: \$65  
Length: 1.25 m  
Width: 1 m

A blue bean bag chair.