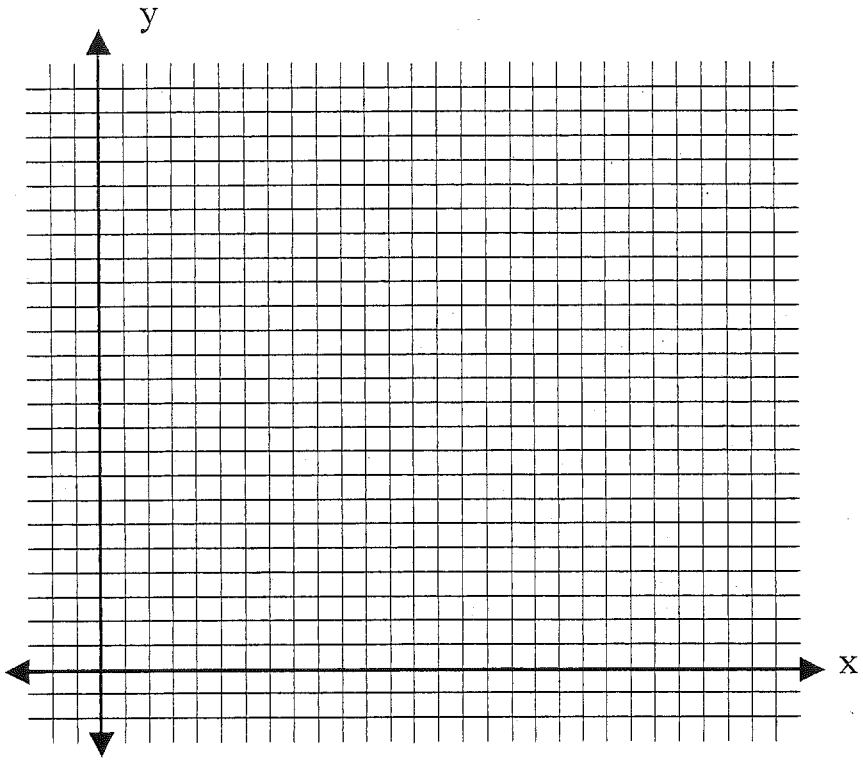
LO 4 : REAL LIFE LINEAR GRAPHS

Experiment One – Stretching of a rubber band

1. Tie a paper clip in the form of a hook to the end of a rubber band.
2. Measure the length and record in the table below.
3. Add washers (always the same number) at a time and record the length of the elastic.
4. Graph to represent your data.

# Of washers	length



5. Answer the following questions
   a) Does the increase in the length of the rubber band tend to be constant?

   b) If yes, write an expression to represent this.

   c) Use x and y to write the equation to represent the chart above.

6. How would your results change if you used a thicker rubber band?

7. How would the graph differ if you used fewer washers at a time? More washers?

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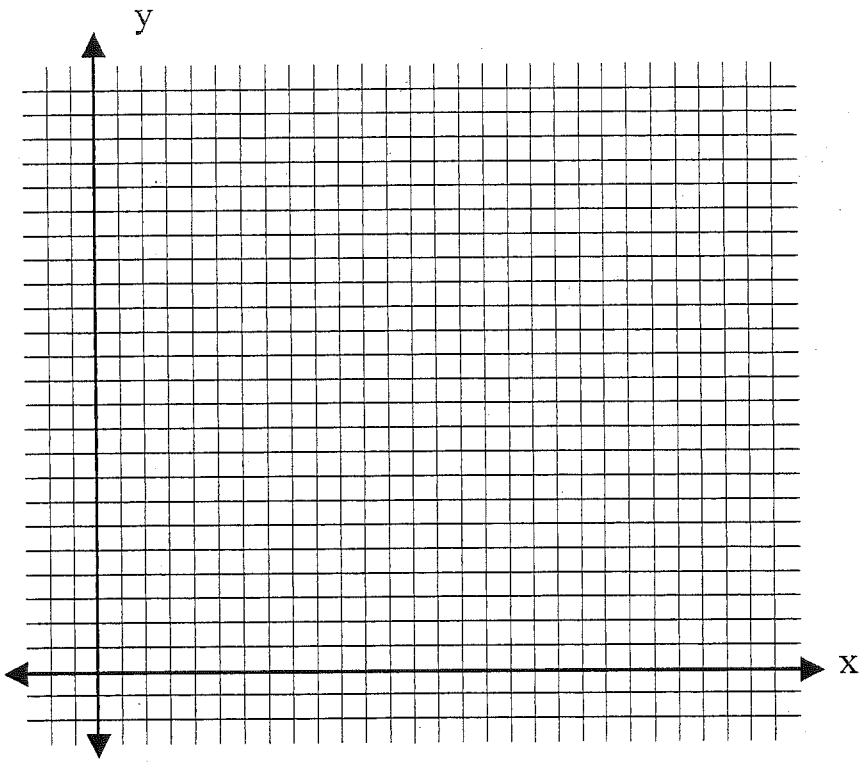
Experiment Two - Marbles

1. Use marbles that are the same size and a graduated cylinder.
2. Fill the container 1/3 full of water and record the level.
3. Add one or two marbles and record the level.
4. Repeat several times always using the same number of marbles.
5. Graph to show the relationship between the number of marbles and the level of the water.

# Of marbles	water level



6. Answer the following questions
   a) Does the change in the level of the water tend to be constant?

   b) If yes, write an expression to represent this.

   c) Use x and y to write the equation to represent the chart above.

7. How will the graph differ if you use more marbles at a time? Fewer marbles?

8. This experiment can be used to measure cold butter for making cookies. Explain how you would do this. What are the advantages?

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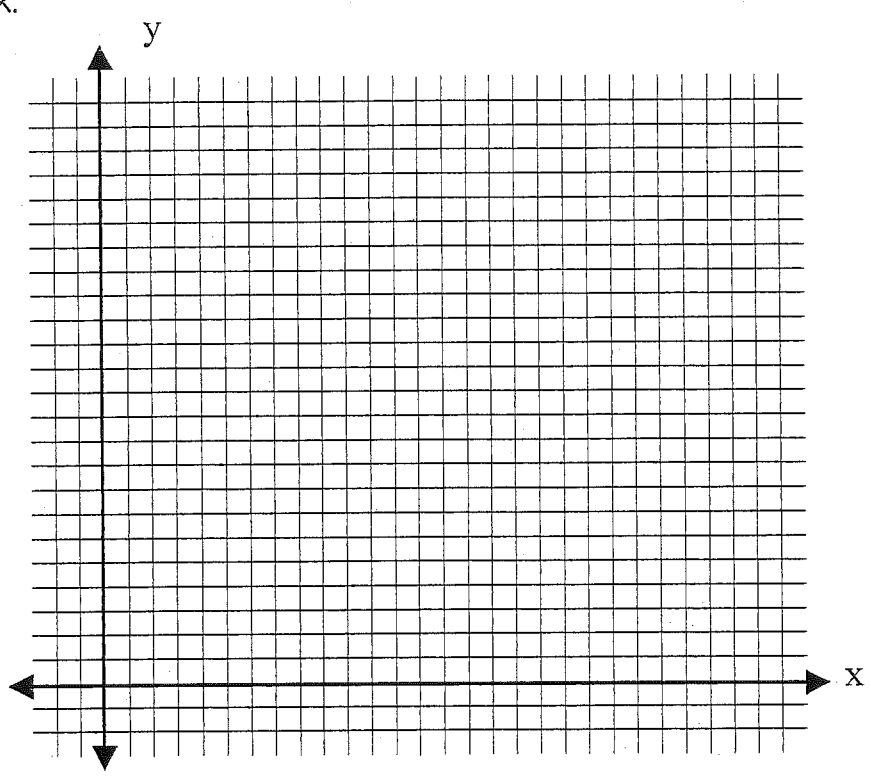
Experiment Three – Stacking coins

1. Stack three 5 cent coins. Measure the height. Record below.
2. Continue stacking the coins (using the same number of coins) and record each time.
3. Make a graph to record the relationship between the number of 5 cent coins and the height of the stack.

# Of coins	height



4. Write the expression to represent this relationship.

5. Use x and y to write the equation that you used in the chart.

6. From your graph predict how high 100 and 1000 coins would be.

7. How would your graph differ if you used
   a) one 5 cent coin?

   b) ten 5 cent coins?

8. How would this compare to another coin such as a 50 cent coin?

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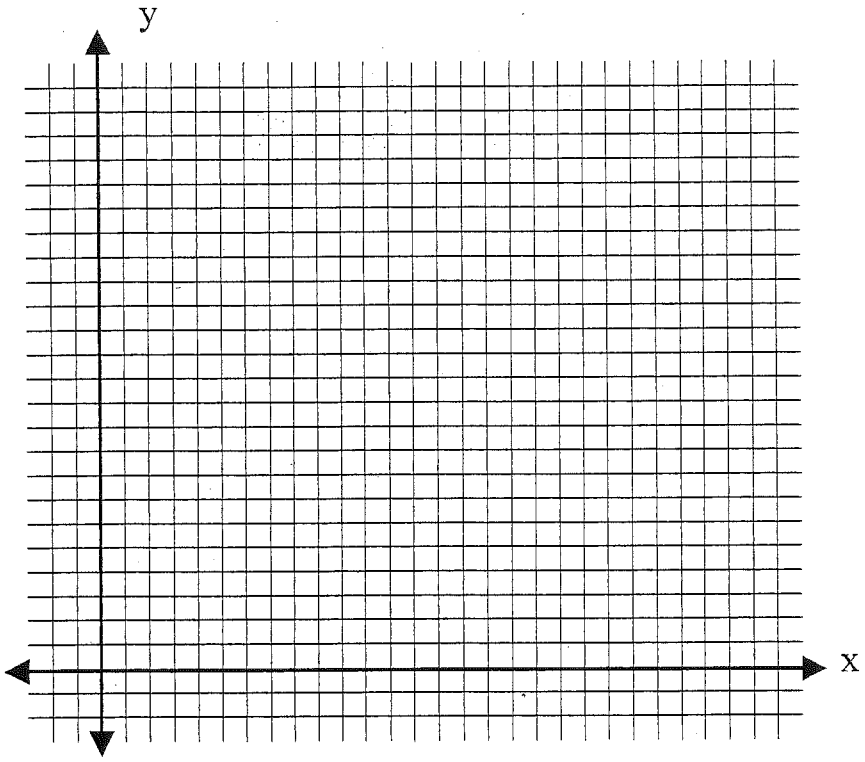
Experiment Four – Die or Dice

1. Roll the die once and record the value in the chart below.
2. Roll the die twice and record the sum of the two rolls in the chart below.
3. Roll the die 3 times and record the sum of the three rolls in the chart below.
4. Continue until the number of rolls is 7.

# Of rolls	sum



1. Explain why, in this case, there may be no pattern?

2. Explain why it is not possible to write an expression or an equation when there is no pattern?