Year 6 maths – Summer 2 Week beginning: 22.6.20

Theme	Graphs and averages (Lesson 11 of 12) Converting Miles into Kilometres	Graphs and averages (Lesson 12 of 12) Reading Line Graphs	Position and Movement (Lesson 1 of 4) Describing position with negative numbers	Position and Movement (Lesson 2 of 4) Describing reflections	Position and Movement (Lesson 3 of 4) Describing Movement
Factual fluency (to aid fluency)	**Rounding decimals** Activity	**Conversion between imperial and metric** Activity	**Plotting co-ordinates** Activity	**Objects in 4 quadrants** Activity	**Objects in 4 quadrants** Activity
Problem/ activity of the day **Remember, just like in class, you can still show the depth of your knowledge** LINK	**(Lesson 1 resources below)** **MAKING LINKS:** Last week, we read information on line graphs. Today we are going to convert between miles and kilometres. **THINK: (support below)** Can you help me with this problem? A mile is actually 1.60934km but two of my friends were debating on whether it mattered if they converted 1 mile to 1.6km or 1.609km. Does it make that much difference? Our problem is on textbook page 252. Look at it now. **SEE: (model below)** Look for how to solve the problem on page 252 of your textbook. **DO:** Use what you have learnt today to solve: Part 1: **questions 1 and 2** from textbook page 253. Check your answers before moving onto: Part 2: Workbook, Chapter 14, Worksheet 11, pages 173-174.	**(Lesson 2 resources below)** **MAKING LINKS:** Yesterday we converted between miles and kilometres. Today we are going to use that knowledge in reading line graphs. **THINK: (support below)** Can you help me with this problem? How can we use the line graph and the diagrams in our textbook to help us work out how far apart the towns are in miles and kilometres? Our problem is on textbook page 254. Look at it now. **SEE: (model below)** Look for how to solve the problem shown on page 255 of your textbook. **DO:** Use what you have learnt today to solve: Part 1: **questions 1and 2** from textbook page 256. Check your answers before moving onto: Part 2: Workbook, Chapter 14, Worksheet 12, page 175.	**(Lesson 3 resources below)** **MAKING LINKS:** Yesterday we read line graphs. Today we are going to describe position with negative numbers. **THINK: (support below)** Can you help me with this problem? My friend wants to use co-ordinates to describe the position of each of the points on the grid. Is it possible without the x and y axes (plural of axis)? Our problem is on textbook page 168. Look at it now. **SEE: (model below)** Look at the different ways to solve the problem shown on pages 168 - 170 of your textbook. Watch the lesson video. **DO:** Use what you have learnt today to solve: Part 1: **question 1** from textbook page 171. Check your answers before moving onto: Part 2: Workbook, Chapter 13, Worksheet 3, pages 132-134.	**(Lesson 4 resources below)** **MAKING LINKS:** Yesterday we described position with negative numbers. Today we are going to describe reflections. **THINK: (support below)** Can you help me describe the reflection of the shape, in our textbooks, when we look at it through a mirror placed on the lines labelled 'mirror'? Our problem is on textbook page 183. Look at it now. **SEE: (model below)** Look at the ways to solve the problem shown on pages 183-184 of your textbook. **DO:** Use what you have learnt today to solve: Part 1: **questions 1 and 2a** from textbook page 185-186 Check your answers before moving onto: Part 2: Workbook, Chapter 13, Worksheet 6, pages 139-140.	**(Lesson 5 resources below)** **MAKING LINKS:** Yesterday we described reflections. Today we are going to describe movement. **THINK: (support below)** Can you help me with this problem? Is it possible that the figures x, y or z are reflections of the red shape? Could the red shape have been reflected in the x or y axis to end up in any of the positions shown in our textbook? Our problem is on textbook page 187. Look at it now. **SEE: (model below)** Look at ways to solve the problem on pages 188 - 192 of your textbook. Watch the lesson video. **DO:** Use what you have learnt today to solve: Part 1: complete the question from textbook page 193. Check your answers before moving onto: Part 2: Workbook, Chapter 13, Worksheet 7, pages 141.
Methods, tips, clues & checks	**Day 1 resources and answers (below)**	**Day 2 resources and answers (below)**	**Day 3 resources and answers (below)**	**Day 4 resources and answers (below)**	**Day 5 resources and answers (below)**

See below for resources to support you to THINK-SEE-DO

DAY 1 RESOURCES:

THINK: Our problem is on textbook page 252.

A mile is actually 1.60934km but two of my friends were debating on whether it mattered if they converted 1 mile to 1.6km or 1.609km.

Does it make that much difference?

DO:

Part 1: complete **questions 1 and 2** from textbook page 253.

Check your answers before moving onto:
Part 2: Workbook, Chapter 14, Worksheet 11, pages 173-174.

SEE: Look for how to solve the problem on page 252 of your textbook.

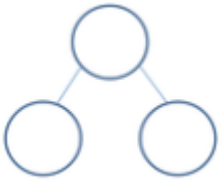
Tens	Ones	Tenths	Hundredths	Thousandth

If I know how many kilometres are in a mile I can use a place value chart to work out 10, 100, 1000 miles by multiplying by 10, 100, 1000, etc.

1 mile = 1.6km
10 miles = 16km
100 miles = 160 km
1000 miles = 1600km

1 mile = 1.609km
10 miles = 16.09km
100 miles = 160.9km
1000 miles = 1609km

Use known facts to help you to work out what 150 miles would be in kilometres.
Partition the number in a part-whole model before converting.



150 miles = 100 miles + 50 miles or **100 + 10 + 10 + 10 + 10 + 10**

We can calculate this as:
100 miles = 160km
50 miles = 100 miles ÷ 2 = 160km ÷ 2= = 80km
160km + 80km = 240km

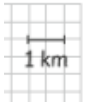
Or 150 miles = 100 miles + (5 x 10 miles)
160km + (5 x 16km) = 240km

DAY 2 RESOURCES:

THINK: Our problem is on textbook page 254.

How can we use the line graph and the diagrams in our textbook to help us work out how far apart the towns are in miles and kilometres?

Take note of the scale on the diagrams:



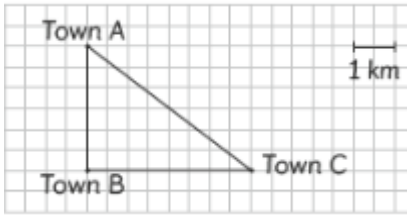
DO:
Part 1: **questions 1 and 2** from textbook page 256.

Check your answers before moving onto:
Part 2: Workbook, Chapter 14, Worksheet 12, page 175.

SEE: Look for how to solve the problem shown on page 255 of your textbook.

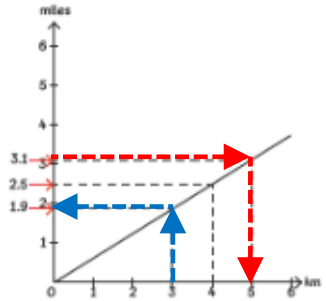
Page 255 shows three pieces of information for converting between miles and kilometres. Look at all three for each conversion.

The grids shows the distance between the towns.
Check the scale to see how many miles or kilometres there are between each of the towns.



The scale on this diagram shows 2 squares represents 1km. Check the scale for miles too.

The graph shows how to read and compare the distance in miles and kilometres.



If converting from miles to kilometres, start on the axis that shows miles and read across and down to read the conversion to kilometres.
If converting from kilometres, start on the axis that shows kilometres and read up and across to miles.

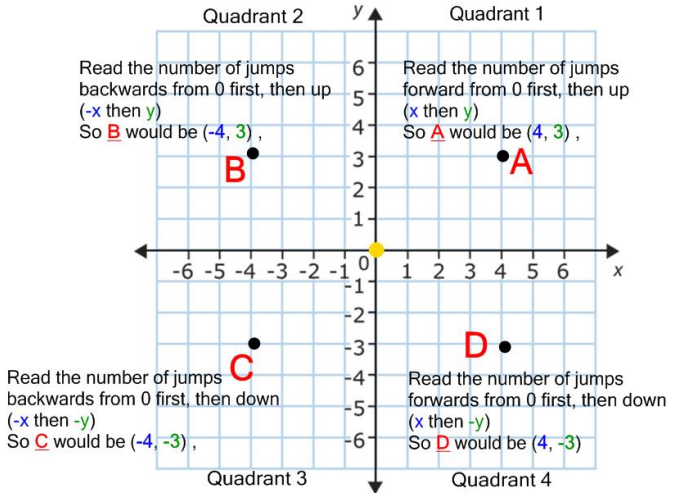
The table guides you towards collecting the right information to answer the question and compare distances in miles and kilometres. Use all three pieces of information to help you to answer the question.

DAY 3 RESOURCES:

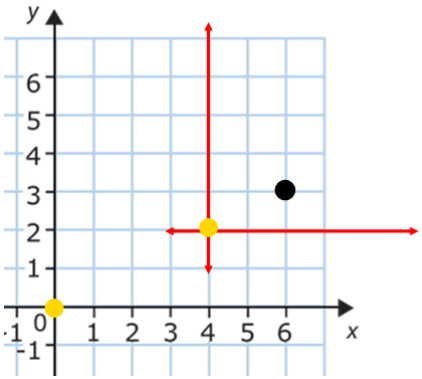
THINK: Our problem is on textbook page 168.
My friend wants to use co-ordinates to describe the position of each of the points on the grid. Is it possible without the x and y axes (plural of axis)? Do you need to know where the axes are to plot co-ordinates?

DO:
Part 1: **question 1** from textbook page 171.
Check your answers before moving onto:
Part 2: Workbook, Chapter 13, Worksheet 3, pages 132-134.

SEE: Look at the different ways to solve the problem shown on pages 168 - 170 of your textbook. Watch the lesson video. Remember how to read and describe the position of each point using co-ordinates. **Read the x-axis first, then the y-axis and put the numbers in brackets with a comma between (x, y).**



If we move the axes (plural of axis) the co-ordinates for the position of the point will change too.



When describing a point we describe its position from 0 along the horizontal x-axis and then along the vertical y-axis

(x, y)

(↔, ↕)

DAY 4 RESOURCES:

THINK: Our problem is on textbook page 183.

Can you help me describe the reflection of the shape, in our textbooks, when we look at it through a mirror placed on the lines labelled 'mirror'?

Does the size of the shape or its colours change when you look at its reflection? Does the distance from the mirror line change?

If you don't have an appropriate mirror you can see the reflection of the shape by placing a mobile phone (switched OFF) on the mirror line. **If you are borrowing a phone please check with the owner first!**

DO:

Part 1: **questions 1 and 2a** from textbook page 185-186: draw the reflection of the letter shown on each grid in the questions on your textbook pages.

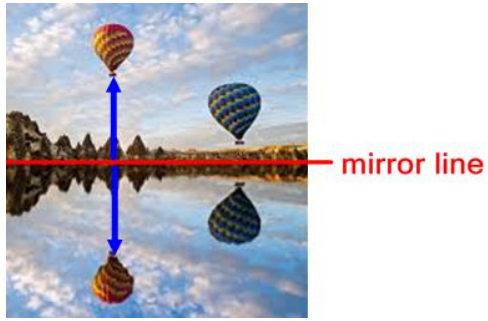
You might find it useful to shade in or draw the original letter before starting to construct its reflection. Remember to use a ruler!

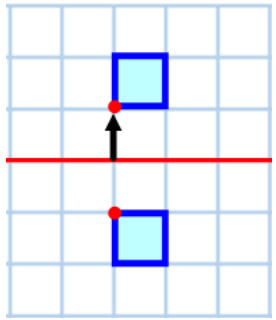
Check your answers before moving onto:
Part 2: Workbook, Chapter 13, Worksheet 6, pages 139-140.

SEE: Look at the ways to solve the problem shown on pages 183 to 184 of your textbook.

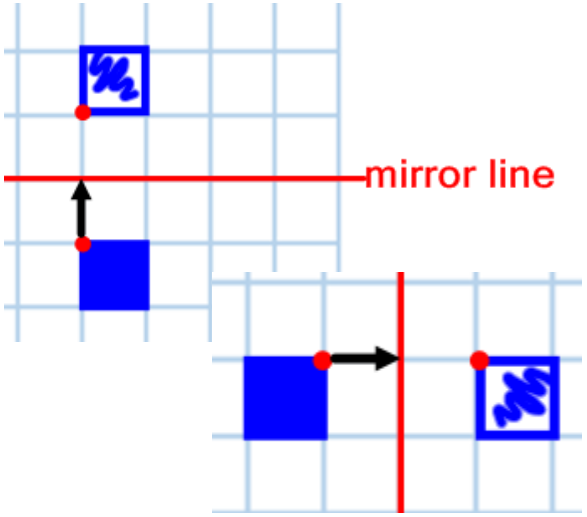
Remember how to read and describe co-ordinates. Read the x-axis first, then the y-axis and put the numbers in brackets with a comma between (x, y).

Remember, the reflected image will be the same distance from the mirror line (or axis).





Turn the image to a position where you can clearly see the reflection of the image AND draw the new image at the same time.



CAN YOU?
- clearly, see the image in the mirror.
- easily count the squares from the mirror line to the shape to work out how far away from the mirror line you should draw the reflected shape.
- draw a dot on the corner of the shape you want to reflect to help you to position the reflected shape.

DAY 5 RESOURCES:

THINK: Our problem is on textbook page 187.
Is it possible that the figures x, y or z are reflections of the red shape?
Could the red shape have been reflected in the x or y axis to end up in any of the positions shown in our textbook?

You can draw on the photocopy of the question to help you to position the figures.

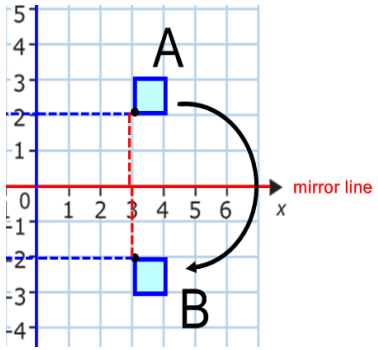
DO:
Part 1: complete the question from textbook page 193.
You can draw on the page to help you to position the figures.

Check your answers before moving onto:
Part 2: Workbook, Chapter 13, Worksheet 7, page 141.

SEE: Look at ways to solve the problem on pages 188 to 192 of your textbook. Watch the lesson video.

Think about where the image would start for it to be reflected in the x-axis or y-axis and end up in its new position.

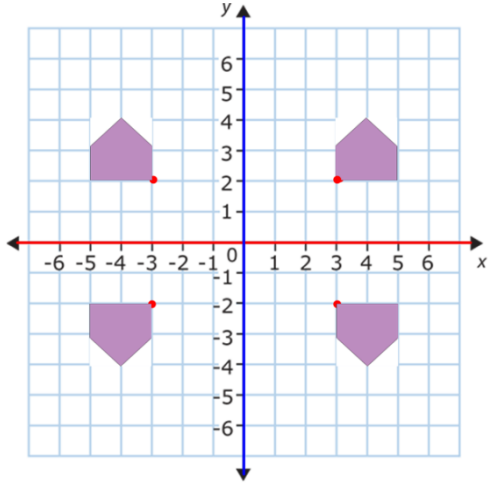
We can use the axis as a mirror line to reflect the shape and describe the movement.
The distance from the axis must be the same.



Remember how to read and describe the position of each point using co-ordinates. Read the x-axis first, then the y-axis and put the numbers in brackets with a comma between (x, y).

When describing the movement of the square we can say the point (3, 2) is reflected in the x-axis (3, -2).

We can use the same point on our figure to tell us its new position when it is reflected in either axis.



The figure that starts at point (3, 2) is reflected in the x-axis at (3, -2).

The figure that starts at point (3, -2) is reflected in the y-axis at (-3, -2).

Draw a coloured dot on your shape to make it easier to reflect your shape. You could use a different colour for each vertex of your shape.

ANSWERS – part 1:

Day 1

Part 1:
Q.1:
Sam gives the best estimate. 5km is about 3.125miles so 3 miles is a good estimate.
Q.2:
a) 96km, b) 220 miles,
c) 10 780 km

Day 2

Part 1:
Q.1:
a) £3.35, b) £1.95

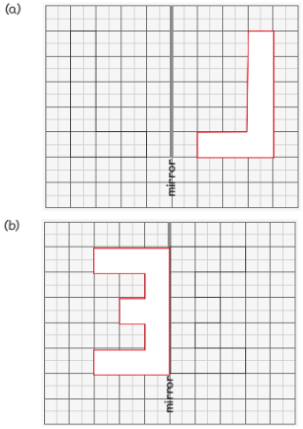
Q.2:
a) $6.30, b) $7.80

Day 3

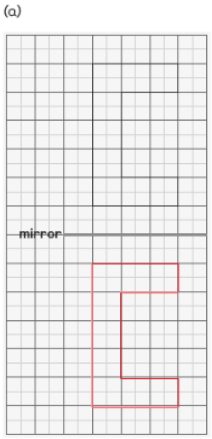
Part 1:
Q.1:
a) (-5, 2), b) (0, -5), c) (5, -5), d) (0, 5)

Day 4

Part 1:
Q.1:



Q.2**a**



Day 5

Part 1:
Q.1:

	Reflection x-axis	Reflection x-axis
A (2, 1)	(2, -1)	(-2, 1)
P (2, 3)	(2, -3)	(-2, 3)
E (5, 5)	(5, -5)	(-5, 5)

ANSWERS – part 2:

Day 1

Part 2: Workbook,
Q.1:
a) 0.8km, b) 1.2km, c) 1.92km,
d) 3.6km, e) 0.25 miles,
f) 0.625miles, g) 15 miles,
h) 350 miles.

Q.2:
a) 5km
b) 20km
c) 10km
d) 14km

Day 2

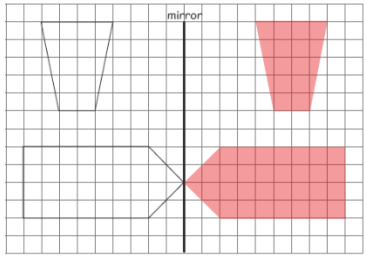
Part 2: Workbook,
Q1:
a) $3.50USD
b) $1400ASD

Day 3

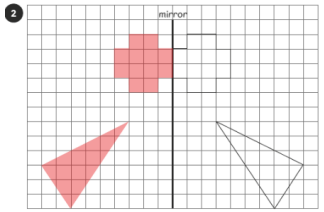
Part 2: Workbook,
Q.1:
a. i) (-4, 4), ii) (-4, -2), iii) (6, -6),
iv) (2, 4)
b) (2, -2),
c) (-4, -6), (6, -2), (3, 1)
d) trapezium

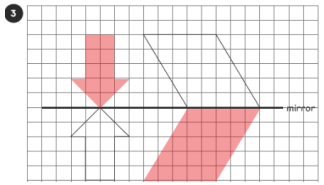
Day 4

Part 2: Workbook,
Q.1:



Q.2 and 3:





Day 5

Part 2: Workbook,
Q.1:

	Reflection x-axis	Reflection x-axis
A (1, 1)	(1, -1)	(-1, 1)
B (5, 3)	(5, -3)	(-5, 3)
C(4,6)	(4, -6)	(-4, 6)
D (1, 4)	(1, -4)	(-1, 4)