



Homework Policy

Prepared by: S Brice

July 2012

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RATIONALE

Homework is an important part of every student's education. It is an opportunity not only to extend the learning that goes on within the classroom but to develop independent learning skills which better prepare students for future success. As a school which is serious about learning, regular homework develops habits in students which encourage them to work under their own steam and deepen their understanding. The nature of homework tasks also develops students' abilities to explore, research and respond in creative ways to supplement the taught curriculum.

At Unity College, the style of homework that we set is tailored to suit each key stage and is designed to support the overall curriculum experience.

At Key Stage 3, homework takes the form of Independent Learning Activities' (ILA).

At Key Stage 4, homework is set more traditionally, by each subject.

Key Stage Three Homework Schedule

Independent Learning Activities (ILAs)

In Years 7 and 8, students are set ILAs as homework each week. An ILA represents a significant piece of independent work ranging from 3 to 5 hours each week. Whilst the ILA should be the student's own work – we encourage parents to get actively engaged with their children by discussing the ILA and providing encouragement and advice.

In Year 7, some subjects work together across a thematic curriculum – this is called iXL. Homework for iXL lessons will take the form of an independent learning activity which must be completed in the student's Learning Log. These iXL ILAs will be marked by the student's PD Tutor and time devoted in PD sessions to discuss and share the completed Learning Logs. Other subject areas (outside of iXL) will set their own ILAs as per the published schedule and these will be marked by the student's class teacher.

All iXL ILAs will link to the current theme for the term / half term. In Year 7, all iXL subjects share a common theme. In Year 8, the Expressive Arts subjects work together on one theme which runs for the whole term while the other iXL subjects continue to share half-termly themes. (This is highlighted by the coloured sections of the schedule).

KEY POINTS:

- ILAs must only be set according to the published schedule to avoid overloading students with too much homework
- ILAs must be differentiated to enable all students, regardless of ability, to complete them to the best of their ability
- There should be a range of tasks including a **literacy** and numeracy or ICT focus
- ILAs must contain success criteria
- All ILAs must be marked and returned to students within 7 days
- ILAs should not just be 'more of the same' class work - but should extend the students' learning, providing genuine opportunities for independent problem solving, research, design and creativity
- ILAs should be accessible to students (and parents) without being dependent on prior class learning
- Year 7 iXL Learning Log ILAs should allow the students freedom to respond in a variety of ways
- Time must be built into PD sessions to discuss Year 7 Learning Logs and iXL ILAs. This will allow the PD Tutor to feed back to students, share examples of excellent work and enable students to conduct peer evaluation
- Year 7 iXL Learning Log ILAs take the format of two pages of A4 – the first outlines the task and is stuck into the Learning Log before the work and the second outlines the success criteria and provides spaces for feedback which is stuck in after the work
- All other ILAs take the format of A5 booklets
- All ILAs are uploaded to the VLE so that students and parents can access them from home / replace or reprint if lost / access any additional resources / know which ILA is current for the week
- ILAs should be substantial enough to equate to 5 hours work over the week
- ILAs must be checked for accuracy and quality before issuing

Key Stage Four Homework

Following a curriculum structure change in June 2012, Key Stage Four now includes students in years nine, ten and eleven.

At KS4, students are working towards specific qualifications and, as such, homework is set more traditionally by each subject area. We still have a responsibility to ensure that homework is spread fairly throughout the week so that students are able to plan their time accordingly. The complexity of the KS4 options based curriculum makes a simple homework timetable difficult to implement successfully. Instead, we publish a timetable showing which night of the week is set aside for students to **complete** each subject's homework.

KEY FACTS :

- Students should write up a personalised version of the homework timetable, replacing 'Opt1' etc with their own subjects – this should be copied into their planners
- Subjects can set homework **max** once weekly (and wait 7 days for hand in) so that students have scheduled day to complete. (It doesn't matter therefore which day it is set).
- Some subjects might want to set homeworks with a quicker turnaround. Core subjects teach students 4 days out of 5, so can simply set homework just before their scheduled night in order to get a quick completion (this would then constitute that subject's homework for the week)
- Parents often like to know what the expected amount and frequency of homework should be. In general, the frequency of homework can range from one piece of extended homework per half term to one shorter piece each week (depending on need throughout the year). A general guideline for shorter weekly homework is around one hour per subject per week.
- All homework will be logged on the VLE so that students and parents can clearly see what has been set and when it is due to be handed in

Key Stage Four Homework Timetable (showing allocated night of completion)

Monday	Tuesday	Wednesday	Thursday	Friday
English Opt 2 subjects (excluding iD)	Opt 1 subjects	Maths Opt 4 subjects (excluding iD)	Opt 3 subjects	Core Science Opt 5 subjects

NB: Opts 2 and 4 lined up with English & Maths as these are the opt columns where students will do core iD / ICT where students are less likely to receive regular homework.

APPENDIX

- Key Stage Three ILA Schedule 2012-13
- Example of levelled KS3 Maths ILA
- Example of iXL Learning Log ILA (Humanities & English)

Key Stage Three Homework Schedule

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All iXL ILAs will link to the current theme for the term / half term. In Year 7, all iXL subjects share a common theme. In Year 8, the Expressive Arts subjects work together on one theme which runs for the whole term while the other iXL subjects continue to share half-termly themes. (This is highlighted by the coloured sections of the schedule).





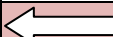





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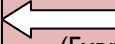
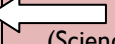





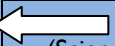
June – July 2012

ILA to be set w/c	ILA to be collected w/c	Year 7 ILAs in iXL are completed in Learning Log Books and marked by PD Tutor Non-iXL ILAs are marked by the subject teacher.	Year 8 All ILAs are subject based and marked by subject teacher		
		No Year 7 until Sept	It's a BIG world out there	New Year 8	
11/06/12	18/06/12			ICT	
18/06/12	25/06/12			Science	
25/06/12	02/07/12			Maths	
02/07/12	09/07/12			MFL	
09/07/12	16/07/12			iXL (English)	
Summer Holiday					

Sept – Dec 2012

ILA to be set w/c	ILA to be collected w/c	Year 7		Year 8			
		ILAs in iXL are completed in Learning Log Books and marked by PD Tutor Non-iXL ILAs are marked by the subject teacher.		All ILAs are subject based and marked by subject teacher			
10/09/12	17/09/12	Do You Dare To Learn ?	No Homework	Challenging Minds	Technology	The Arts Toolkit	
17/09/12	24/09/12		 iXL (Science Live / ICT)		Maths		
24/09/12	01/10/12		Maths		 iXL (RE)		
01/10/12	08/10/12		 iXL (English / Humanities)		iXL (Drama) 		
08/10/12	15/10/12		Technology		Science		
15/10/12	22/10/12		 iXL (Expressive Arts)		Maths		
Half Term Holiday							
05/11/12	12/11/12	Living The Legend	Maths	This is Your Life	MFL		The Arts Toolkit
12/11/12	19/11/12		MFL		 iXL (Art)		
19/11/12	26/11/12		 iXL (Science Live / ICT)		Technology		
26/11/12	03/12/12		Science		Maths		
03/12/12	10/12/12		Maths		 iXL (History)		
10/12/12	17/12/12		 iXL (English / Humanities)		 Expression (English)		

Jan – March 2013

ILA to be set w/c	ILA to be collected w/c	Year 7 ILAs in iXL are completed in Learning Log Books and marked by PD Tutor Non-iXL ILAs are marked by the subject teacher.		Year 8 All ILAs are subject based and marked by subject teacher	
07/01/13	14/01/13	Out of This World	 iXL (Expressive Arts)	Living in Paradise	Science
14/01/13	21/01/13		Technology		Maths
21/01/13	28/01/13		 iXL (Science Live / ICT)		 iXL (Geography)
28/01/13	04/02/13		(Maths)		iXL (Music) 
04/02/13	11/02/13		Science		Technology
Half Term Holiday					
25/02/13	04/03/13	Who Am I	MFL	Telling Tales	Maths
04/03/13	11/03/13		 iXL (Expressive Arts)		 iXL (History)
11/03/13	18/03/13		Maths		 iXL (English)
18/03/13	25/03/13		 iXL (Science Live / ICT)		Science
Easter Holiday					
The S&C Experience					

April – June 2013

ILA to be set w/c	ILA to be collected w/c	Year 7		Year 8	
		ILAs in iXL are completed in Learning Log Books and marked by PD Tutor Non-iXL ILAs are marked by the subject teacher.		All ILAs are subject based and marked by subject teacher	
15/04/13	22/04/13	Time Machine	Technology	Let's Get Physical	Maths
22/04/13	29/04/13		Maths		iXL (RE)
29/04/13	06/05/13		iXL (English / Humanities)		iXL (Drama)
06/05/13	13/05/13		Science		MFL
13/05/13	20/05/13		iXL (Science Live / ICT)		Maths
20/05/13	27/05/13		Maths		Technology
Half Term Holiday					
03/06/13	10/06/13		iXL (Expressive Arts)		iXL (Dance)
10/06/13	17/06/13		iXL (English)		Science
			iXL (English / Humanities)		

ILAs beyond this point will be issued nearer the time.



7A

Number 1

Mathematics ILA
Year 7- Level 3-4

Covers work from 7A unit 1 (**Integers and Decimals**) and unit 4 (**Fractions and Decimals**)

Name _____

Class _____

Teacher _____

Due In _____

Aims of the ILA

- To encourage independent learning and research skills.
- To develop mathematical processes to level 3-4, through number skills at the same level.

Learning Objectives

- | | |
|--|----------|
| • To be able to understand place value of whole numbers and decimals. | Level 3c |
| • To be able to use decimals to write and add monetary values. | Level 3c |
| • To be able to use mental and written methods for addition and subtraction. | Level 3b |
| • To understand negative numbers as positions on a number line. | Level 4b |
| • To be able to use equivalent fractions and decimals. | Level 4a |

Assessment Criteria

- Completing your own work, to the best of your ability, with pride.
- Showing a clear and justifiable method.
- Stating a correct and accurate answer.
- Using mathematical techniques to communicate effectively in an organised manner

Hints and Tips

- An integer is any whole number, positive or negative.
- The value of a digit depends upon its position in the number this is called place value.
- You can partition a number to make it easier to add or subtract.
- You can use compensation when the number you are adding or subtracting is nearly a multiple of 10,100, 1000.

Sources of Information

- Look at the 7A Maths Links book
- Use the Maths homework club after school on Tuesdays in S1
- Use the Unity College VLE
- Use the Learning Zone before or after school
- Use MyMaths.com and Sam Learning

Keywords to be learned

- subtraction
- decimal
- fractions
- partitioning
- negative
- place value
- addition

Learning Objective one. To be able to understand place value of whole numbers and decimals. Level 3c

1. Write the numbers 1392, 805 and 850 in order with the smallest number first.

(1 mark)

2. Write the word **greater** or **smaller** in these spaces to make these two statements correct:

893 is _____ than 839.

4290 is _____ than 4921.

(2 marks)

3. Write one of the symbols < or > in these spaces to make these two statements correct:

360 ____ 306

447 ____ 474

(2 marks)

4. Write one of the symbols $<$ or $>$ in these spaces to make these two statements correct:

2.1 ____ 1.2

14.3 ____ 14.9

(2 marks)

5. Write these numbers in this table. Take care with the decimal point:

i twenty-six and two-tenths

ii one hundred and sixteen and five-tenths

iii 2470

iv 24.7

	Thousands	Hundreds	Tens	Units	Tenths
i				●	
ii				●	
iii				●	
iv				●	

(4 marks)

6. Mrs Crowther pays a plumber £1247 for a new boiler.

- a. How much money does the figure 2 stand for in this number?

£ _____

- b. A lorry driver travels 436.7 miles to deliver an order.

How many miles does the figure 6 stand for in this number?

_____ miles

(2 marks)

Learning Objective two. To be able to use decimals to write and add monetary values. Level 3c

7. Joanne has these coins:



How might she make these amounts:

Draw or write your answers.

a. 30p

b. 70p

c. £1.00

(3 marks)

8. Write these amounts as decimals:



...



b

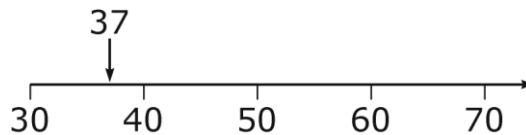


(3 marks)

c

9. Use these number lines to help you with these calculations.

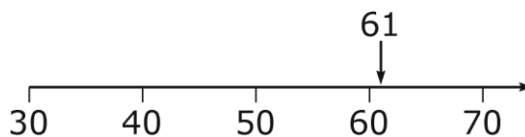
a. $37 + 24$



a.

Answer _____

b. $61 - 23$

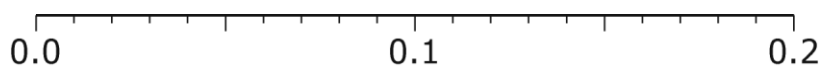


b.

Answer _____

(2 marks)

10. Use the number line to help you add these amounts.



a. $0.05 + 0.1$

Answer _____

b. $0.1 + 0.02$

Answer _____

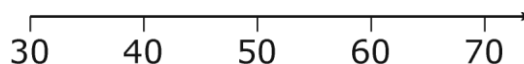
c. $0.08 + 0.12$

Answer _____

(3 marks)

Learning Objective three. To be able to use mental and written methods for addition, subtraction and multiplication. Level 3b

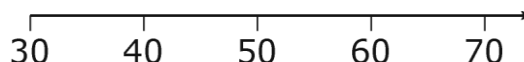
11. Samira has £46 and Sarah has £25.



How much do they have altogether?

Answer _____

12. Jack drives 28 miles on a journey of 66 miles.



How far does he still have to go?

Answer _____

(2 marks)

13. Work out these calculations in your head and write the answers. You could draw a number line to help you.

a. $29 + 32 =$ _____

(2 marks)

b. $63 - 14 =$ _____

14. John has £51 and Toby has £34.

How much do they have altogether?

(1 mark)

£ _____

15. Claire drives 19 miles on a journey of 45 miles.

How far does she still have to go?

(1 mark)

_____ miles

16. Use a written method for these problems:

a.
$$\begin{array}{r} 247 \\ + 315 \\ \hline \hline \end{array}$$

b.
$$\begin{array}{r} 374 \\ - 136 \\ \hline \hline \end{array}$$

(2 marks)

17. Use a written method for these problems.

a.
$$\begin{array}{r} 847 \\ + 385 \\ \hline \hline \end{array}$$

b.
$$\begin{array}{r} 457 \\ - 282 \\ \hline \hline \end{array}$$

(2 marks)

18. Mr Patel spends £263 on car repairs and £552 on car insurance.

How much does he spend altogether?

£ _____

(2 marks)

19. Jane Hooper travels 895 km by road and air to attend a business meeting.

If she travels 157 km by road, how far does she travel by air?

_____ miles

(2 marks)

20. There are 8 friends in the park. Each friend has £5.
How much do they have altogether?

£ _____ (1 mark)

21. There are 7 parcels. Each parcel weighs 3 kg.
How much do they weigh altogether?

_____ kg (1 mark)

22. Anna Smith travels 939 km by road and air to go on holiday.
If she travels 128 km by road, how far does she travel by air?

_____ km (1 mark)

23. Use multiplication facts to work these out in your head and write the answers.

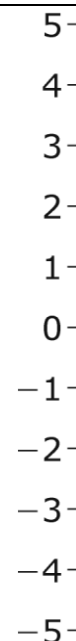
a. $9 \times 8 =$

b. $7 \times 7 =$

(2 marks)

Learning Objective four. To understand negative numbers as positions on a number line. Level 4b

24. In winter, the temperature at midday is 4°C .
By sunset, it has fallen by 6 degrees.
What is the temperature at sunset?
- _____ $^{\circ}\text{C}$
- It is -2°C in Newcastle and 2°C in Bristol.
How many degrees warmer is Bristol than Newcastle?
- _____ $^{\circ}\text{C}$



(2 marks)

25. Put these temperatures in order.
Start with the coldest.
 0°C , -3°C , 6°C

_____ $^{\circ}\text{C}$ _____ $^{\circ}\text{C}$ _____ $^{\circ}\text{C}$

(1 mark)

- 26.

Use the number line above to find each of the temperatures below:

- a. Start at 7 degrees Celcius and drops by 9 degrees. _____
- b. Start at -5°C and goes up by 7 degrees. _____
- c. Start at -4°C and drops by 4 degrees. _____
- d. Start at -8°C and goes up by 5 degrees. _____
- e. Start at -5°C and goes up by 9 degrees. _____

(4 marks)

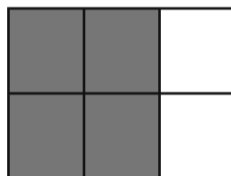
Learning Objective five. To be able to use equivalent fractions and decimals. Level 4a

27. These two rectangles have been split into pieces.

X



Y



a. Into how many pieces has:

i rectangle X been split?

ii rectangle Y been split?

b. What is the fraction which is shaded:

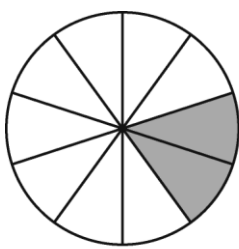
i in rectangle X?

ii in rectangle Y?

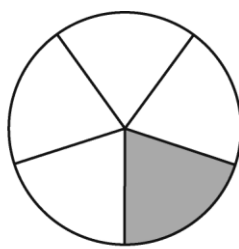
c. $\frac{2}{3} = \frac{\quad}{6}$

(5 marks)

28. Here are two circles.



X



Y

What is the fraction which is shaded:

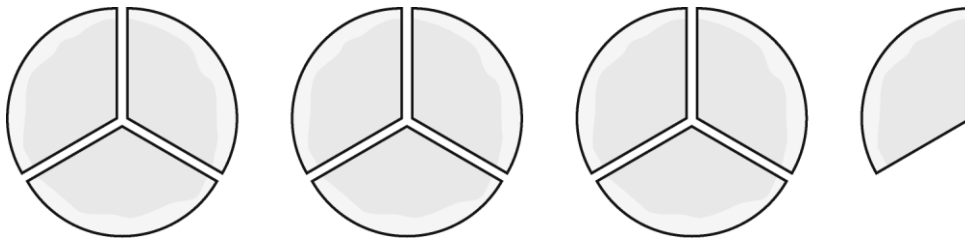
i in circle X?

ii in circle Y?

(2 marks)

28. Mark has $3\frac{1}{3}$ cakes to share out.

He cuts the whole cakes into thirds as well.



How many pieces does he have? _____

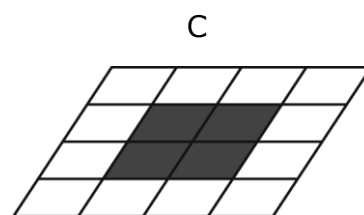
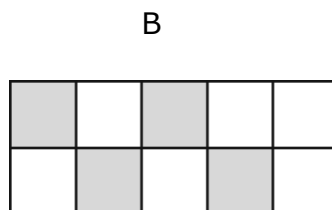
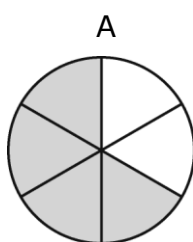
Write the missing number in the gap.

$$3\frac{1}{3} = \frac{\dots}{3}$$

(2 marks)

29. Match each shaded part of a shape with its equivalent fraction from the box.

$\frac{1}{2}$	$\frac{2}{3}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{2}{5}$
---------------	---------------	---------------	---------------	---------------



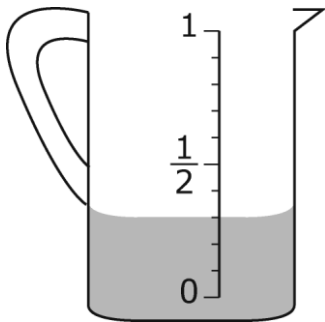
Shape A has _____ shaded.

Shape B has _____ shaded.

Shape C has _____ shaded.

(3 marks)

30. This jug can hold up to
1 litre of water.



- a. How much water is in the jug? Write your answer:
- i as a fraction _____ litres
- ii as a decimal _____ litres
- b. How much more water could the jug hold? Write your answer
- i as a fraction _____
- ii as a decimal _____
- c. Write the missing numbers in the gaps:































$$\frac{1}{2} = \frac{\quad}{10} = 0.\underline{\quad}$$

(6 marks)

Investigation

1. It was Helen's first day at school. The teacher suggested that it would be a good idea for each child to meet every other child in the class. The teacher said, "When you meet, please shake hands and introduce yourself by name."

If there were 10 children in the class, how many handshakes were there in total?

Level	Learning Objective	Pupil Assessment	Teacher Assessment
3c	To be able to understand place value of whole numbers and decimals.	  	  
3c	To be able to use decimals to write and add monetary values.	  	  
3b	To be able to use mental and written methods for addition and subtraction.	  	  
4b	To understand negative numbers as positions on a number line.	  	  
4a	To be able to use equivalent fractions and decimals.	  	  

Parental Comment	Teacher General Comment	Teacher Investigation Comment



7B

Number 1

Mathematics ILA

Year 7 - Level 4-5

Covers work from 7B unit 1 (**Integers and Decimals**) and unit 4 (**Fractions, Decimals and Percentages**)

Name

Class

Teacher

Due In

Aims of the ILA

- To encourage independent learning and research skills.
- To develop mathematical processes to level 4-5, through number skills at the same level.

Learning Objectives

- | | |
|---|----------|
| • To understand negative numbers as positions on a number line. | Level 4a |
| • To be able to multiply and divide integers by 10, 100, 1000 and explain the result. | Level 4a |
| • To be able to recognise fractions and to add and subtract fractions. | Level 5c |
| • To be able to convert terminating decimals to fractions. | Level 5b |
| • To be able to find percentages of an amount. | Level 5b |

Assessment Criteria

- Completing your own work, to the best of your ability, with pride.
- Showing a clear and justifiable method.
- Stating a correct and accurate answer.
- Using mathematical techniques to communicate effectively in an organised manner.

Hints and Tips

- An integer is any whole number, positive or negative, including zero.
- A decimal system is based on powers of 10.
- The value of a digit depends upon its place in the number this is called place value.
- You can use partitioning to split a number into parts which are easier to add or subtract.
- You can use compensation when the number you are adding or subtracting is nearly a multiple of 10, 100 or 1000.

Sources of Information

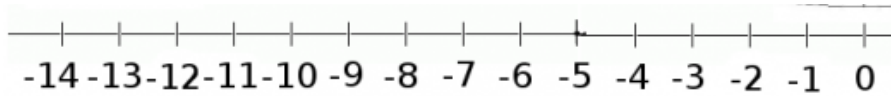
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- Use the Maths homework club after school on Tuesdays in S1
- Use the Unity College VLE
- Use the Learning Zone before or after school
- Use MyMaths.com and Sam Learning

Keywords to be learned

- integer
- addition
- subtraction
- decimal
- negative
- place value
- fraction

Learning Objective one. To understand negative numbers as positions on a number line. Level 4a

1. Use a number line to work out the following calculations.



a. $-4 + 3 =$

b. $-7 + 5 =$

c. $-13 + 10 =$

d. $-9 + -4 =$

e. $-11 + 2 =$

f. $-3 + 3 =$

g. $-14 + 7 =$

h. $-8 - -3 =$

i. $-2 + -3 =$

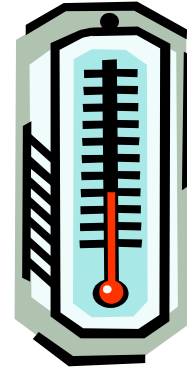
j. $-4 + -7 =$

k. $-10 + -3 =$

l. $-9 - -2 =$

(12 marks)

2. Write an addition or subtraction sum and solve each of these problems:



- a. The temperature is -5 degrees. It rises by 3 degrees. What is the new temperature?

Answer _____

- b. The temperature is -12 degrees. It rises by 5 degrees. What is the new temperature?

Answer _____

- c. The temperature is -2 degrees. It falls by 8 degrees. What is the new temperature?

Answer _____

- d. The temperature is -7 degrees. It rises by 6 degrees. What is the new temperature?

Answer _____

(4 marks)

Learning Objective two. To be able to multiply and divide integers by 10, 100, 1000 and explain the result. Level 4a

3. Without using a calculator, answer the following:

- a. $34 \times 10 =$
- b. $89 \times 100 =$
- c. $4 \times 1000 =$
- d. $34 \div 10 =$
- e. $89 \div 100 =$
- f. $7 \div 100 =$
- g. $4 \div 1000 =$

(7 marks)

4. Here are four number cards:



Fill in the missing number in each of these statements using one of these cards:

- a. $0.8 \times \underline{\hspace{2cm}} = 8$
- b. $4 \times \underline{\hspace{2cm}} = 400$
- c. $30 \div \underline{\hspace{2cm}} = 3$
- d. $570 \div \underline{\hspace{2cm}} = 5.7$
- e. $4.8 \times \underline{\hspace{2cm}} = 480$
- f. $24 \div \underline{\hspace{2cm}} = 0.24$
- g. $489 \times \underline{\hspace{2cm}} = 489$

(7 marks)

5. Fill in the missing operations in each case:

$$\boxed{0.37} \longrightarrow \boxed{} \longrightarrow \boxed{37}$$

$$\boxed{567} \longrightarrow \boxed{} \longrightarrow \boxed{5.67}$$

$$\boxed{0.07} \longrightarrow \boxed{} \longrightarrow \boxed{70}$$

$$\boxed{650} \longrightarrow \boxed{} \longrightarrow \boxed{65}$$

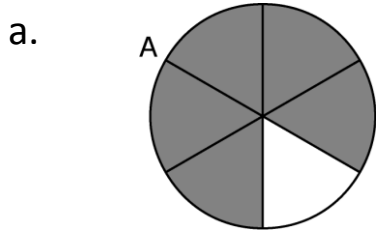
$$\boxed{0.6} \longrightarrow \boxed{} \longrightarrow \boxed{0.006}$$

$$\boxed{345} \longrightarrow \boxed{} \longrightarrow \boxed{0.345}$$

(6 marks)

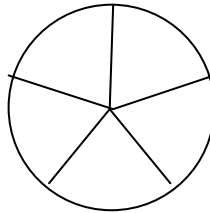
Learning Objective three. To be able to recognise fractions and to add and subtract fractions. Level 5c

6. What fraction of shape A is shaded?



Answer _____

b. Shade $\frac{2}{5}$ of this shape:



(2 marks)

7. This table shows which football teams the students in a class support:

Rovers	United	Spartans	City
12	3	4	1

What fraction of these students support :

a. Spartans? Answer _____

b. Rovers? Answer _____ (2 marks)

8. Do these calculations, simplify your answer if possible:

a. $\frac{3}{8} + \frac{1}{8} =$

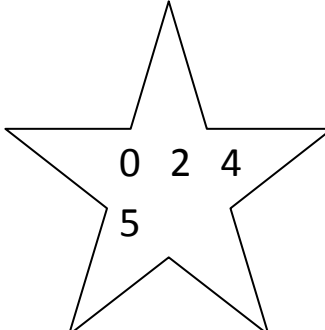
b. $\frac{7}{12} + \frac{2}{12} =$

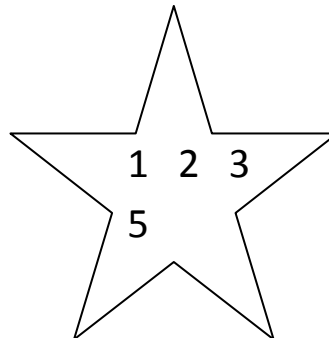
c. $\frac{7}{10} - \frac{2}{10} =$

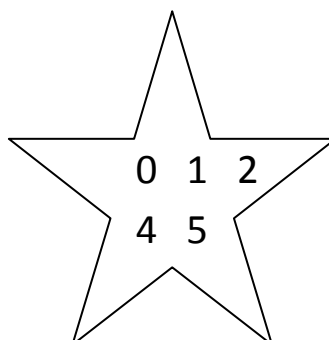
d. $\frac{5}{10} - \frac{3}{10} =$ (4 marks)

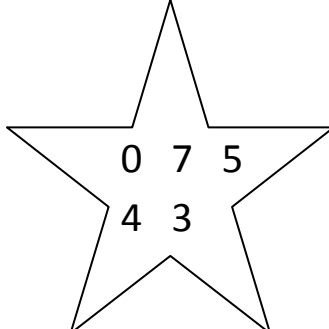
Learning Objective four. To be able to convert terminating decimals to fractions. Level 5b

9. Use the numbers in the stars to make up fractions and decimals that are equivalent to each other:

a. $\frac{\square}{\square} = \square.\square$ 

b. $\frac{3}{\square} = \square.\square$ 

c. $\frac{\square}{4} = \square.\square\square$ 

d. $\frac{\square}{\square} = \square.7\square$ 

(8 marks)

10. Convert each of the following decimals into fractions:

a. 0.2

b. 0.28

c. 0.35

d. 0.85

e. 0.9

f. 0.16

g. 0.24

h. 0.48

i. 0.95

(9 marks)

11. Convert these fractions into decimals:

a. $\frac{3}{10}$

b. $\frac{4}{25}$

c. $\frac{3}{20}$

d. $\frac{3}{8}$

e. $\frac{23}{100}$

f. $\frac{6}{25}$

g. $\frac{7}{50}$

h. $\frac{14}{25}$

i. $\frac{13}{20}$

(9 marks)

**Learning Objective five. To be able to find percentages of an amount.
Level 5b**

12. Find these amounts:

a. 1% of £220 =

b. 2% of £220 =

c. 10% of 520 kg =

d. 30% of 520 kg =

e. 10% of £350 =

f. 1% of £350 =

g. 5% of 400kg =

h. 15% of 500m =

(8 marks)

13. A meal for a group of people costs £400. They leave a tip of 5% of the cost.

How much is 5% of £400?

(2 marks)

14. An ipod costs £80. In the sale it is reduced by 15%, how many pounds is it reduced by?

(2 marks)

15. Sarah gets £35 pocket money a month. She spends 80% of it on music. How much does she spend on music a month?

(2 marks)

Investigation

1. Here is a puzzle.
 - Choose any three digit number and write it down.
 - Reverse the digits in the number and write it down to make a second number.
 - Subtract the smallest number from the largest number and write the answer to make a third number.
 - Reverse the digits in this number and write it down to make a fourth number.
 - Add the third and fourth numbers together.

Your answer is 1089!

For example:

$$\begin{array}{r} 653 \\ -356 \\ \hline 297 \\ +792 \\ \hline 1089 \end{array}$$































Reverse the digits

Reverse the digits

- a. Investigate if this rule works for any three digit number.
- b. Try to explain why the rule works.
- c. Is there a rule for 4 digit numbers?

(Space for working out)

(space for working out)

Level	Learning Objective	Pupil Assessment	Teacher Assessment
4a	To understand negative numbers as positions on a number line.	  	  
4a	To be able to multiply and divide integers by 10, 100, 1000 and explain the result.	  	  
5c	To be able to recognise fractions and to add and subtract fractions.	  	  
5b	To be able to convert terminating decimals to fractions.	  	  
5b	To be able to find percentages of an amount.	  	  

Parental Comment	Teacher General Comment	Teacher Investigation Comment



7C

Number 1

Mathematics ILA

Year 7 – Level 4-6

Covers work from 7C unit 1 (Integers and Decimals) and unit 4 (Fractions, Decimals and Percentages)

Name

Class

Teacher

Due In

Aims of the ILA

- To encourage independent learning and research skills.
- To develop mathematical processes to level 4-6, through number skills at the same level.

Learning Objectives

- | | |
|---|----------|
| • To be able to compare the size of decimals and put them in order. | Level 4b |
| • To be able to multiply and divide decimals by 10, 100, 0.1 and 0.01. | Level 5c |
| • To be able to combine positive and negative numbers in different ways. | Level 6c |
| • To be able to add and subtract whole numbers and decimals mentally and using written methods. | Level 5c |
| • To be able to add and subtract fractions. | Level 5b |
| • To be able to find a fraction or a percentage of a quantity. | Level 6c |
| • To be able to convert between fractions, decimals and percentages. | Level 6c |

Assessment Criteria

- Completing your own work, to the best of your ability, with pride.
- Showing a clear and justifiable method.
- Stating a correct and accurate answer.
- Using mathematical techniques to communicate effectively in an organised manner.

Hints and Tips

- Remember to use place value when ordering decimals.
- When adding or subtracting fractions, ensure the denominators are the same.
- To find a fraction of a quantity, divide by the denominator and multiply by the numerator.

Sources of Information

- Look at the 7C Maths Links book
- Use the Maths homework club after school on Tuesdays in S1
- Use the Unity College VLE
- Use the Learning Zone before or after school
- Use MyMaths.com and Sam Learning

Keywords to be learned

- decimals
- order
- percentage
- fractions
- place value
- denominator
- numerator

Learning Objective one. To be able to compare the size of decimals and put them in order. Level 4b

1. Compare decimals by answering the following questions.

a. Write these decimals in order of size with the smallest first:

6.3 0.63 6.03 0.603

In order, they are _____

b. Write these decimals in order of size with the smallest first:

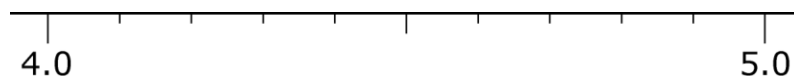
1.2 0.102 1.02 0.012 0.12

In order, they are _____ (4 marks)

2. Draw four arrows on this number line to represent these four decimals:

4.2 4.25 4.5 4.72

Label each arrow with its decimal.



(4 marks)

3. Place < or > between these pairs of numbers to show which number is larger:

4.12 _____ 4.1

1.814 _____ 1.82

2.085 _____ 2.0841

(3 marks)

Learning Objective two. To be able to multiply and divide decimals by 10, 100, 0.1 and 0.01. Level 5c

4. Calculate:

a. 21×100

b. $32.5 \div 10$

c. 6.5×1000

d. $4.2 \div 1000$

e. $12.5 \div 0.1$

f. 0.07×10^3

g. 12.5×0.1

h. $12.5 \div 0.01$

(8 marks)

Learning Objective three. To be able to combine positive and negative numbers in different ways. Level 6c

5. Six thermometers measure six temperatures in $^{\circ}\text{C}$.

a. Write these temperatures in order with the coldest first:

12°C 1°C -1°C -12°C 0.1°C -0.1°C

In order, they are.....

b. Put this set of numbers in order, starting with the smallest:

-4 0.3 1.3 -1.3 -0.5 8

In order, they are..... (4 marks)

6. Write the answers for each of these:

a. $-4 + 6$

b. $4 - 6$

c. $-4 - 6$

d. -4×6

e. $6 \div -2$

_____.

f. -6×-2

(6 marks)

Learning Objective four. To be able to add and subtract whole numbers and decimals mentally and using written methods. Level 5c

7. Use mental methods with these problems:

- a. Mr Jones is laying slabs to make two paths. One path is 22.1 metres long and the other is 19.8 metres long. What is the total length of the paths?

_____m

- b. The population of Thornhill is 7103 and the population of Westown is 5894. What is the difference in their populations?

- c. Two electrical cables are 43.7 metres and 18.7 metres long. If they are connected together, what is their total length?

_____m

- d. The population of Thixby is 5203 and the population of Overton is 4876. What is the difference in their populations?

(4 marks)

8. Use standard written methods for these calculations:

a. $28.6 + 262.35$

b. $27.6 + 142.35$

c. $527.2 - 174.8$

d. $437.2 - 163.8$

e. Tian Li bought three train tickets. They cost him £27.56, £86 pence and £38. How much did he spend altogether?

f. A load of potatoes weighs 325.6kg. The farmer sells 258.7kg in his farm shop. What weight of potatoes does he have left?

(6 marks)

Learning Objective five. To be able to add and subtract fractions.
Level 5b

9. Calculate each of these, giving your answer as a fraction in its simplest form:

a. $\frac{2}{5} + \frac{2}{5}$

b. $\frac{3}{8} + \frac{7}{8}$

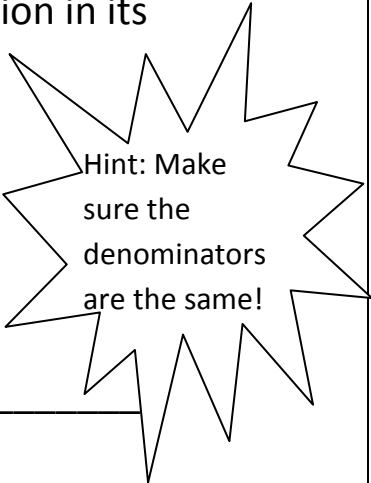
c. $\frac{15}{16} - \frac{7}{16}$

d. $1\frac{5}{8} - \frac{3}{8}$

_____ (4 marks)

10. Calculate each of these, giving your answer as a fraction in its simplest form:

a. $\frac{1}{3} + \frac{1}{4}$



Hint: Make sure the denominators are the same!

b. $\frac{2}{7} + \frac{3}{5}$

c. $\frac{9}{16} - \frac{7}{24}$

d. $\frac{5}{11} - \frac{2}{9}$

e. $2\frac{4}{9} + 1\frac{1}{3}$

_____ (10 marks)

Learning Objective six. To be able to find a fraction or a percentage of a quantity. Level 6c

11. Calculate the following:

a. $\frac{1}{5}$ of £35 =

b. $\frac{3}{5}$ of £35 =

c. $\frac{1}{3}$ of £471 =

d. 1% of £140 =

e. 5% of £140 =

f. $\frac{1}{8}$ of £64 =

g. $\frac{2}{3}$ of 924kg =

h. 10% of 320kg =

i. 20% of 425km =

j. 12% of £567 =

k. 35% of £78 =

(11 marks)

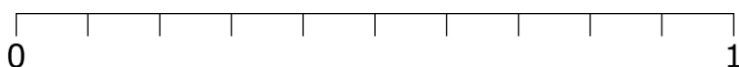
Learning Objective seven. To be able to convert between fractions, decimals and percentages. Level 6c

12. Write these as decimals:

$$\frac{1}{2} = \underline{\hspace{2cm}} \quad \frac{2}{5} = \underline{\hspace{2cm}} \quad 80\% \underline{\hspace{2cm}} \quad (3 \text{ marks})$$

13. Draw four arrows on this number line to represent these numbers:

$$\frac{1}{2} \quad \frac{2}{5} \quad 80\% \quad 0.7$$



a. Label each arrow with its value.

b. Which of these numbers is the smallest?

 (5 marks)

14a. Change $\frac{3}{25}$ to a decimal

b. Change $\frac{9}{50}$ to a decimal

c. Change $\frac{7}{8}$ to a decimal

d. Change $\frac{5}{6}$ to a decimal

e.

Change $\frac{13}{25}$ to a decimal

 (5 marks)

15. Change these decimals to fractions and write them in their simplest form:

a. 0.45

b. 0.125

c. 0.05

d. 1.175

e. 1.3333...

(5 marks)

16. Write these as percentages:

a. $\frac{17}{50}$

b. 0.15

(2 marks)

Investigation

1. Magic Squares

The numbers 1 to 9 are placed in a 3 by 3 grid in the following way:

1	9	5
8	4	3
6	2	7

The sum of each row and column is 15, however, the diagonal running from top left to bottom right add to 12.











































- a. Show how you can arrange all of the numbers 1 to 9 in a square grid measuring 3 by 3, so that the sum of every row, column, and diagonal is the same.

(3 marks)

- b. Can you do the same for a 4 x 4 grid with the numbers 1 – 16?

(space for working)

(3 marks)

Level	Learning Objective	Pupil Assessment	Teacher Assessment
4b	To be able to compare the size of decimals and put them in order.	  	  
5c	To be able to multiply and divide decimals by 10, 100, 0.1 and 0.01.	  	  
6c	To be able to combine positive and negative numbers in different ways.	  	  
5c	To be able to add and subtract whole numbers and decimals mentally and using written methods.	  	  
5b	To be able to add and subtract fractions.	  	  
6c	To be able to find a fraction or a percentage of a quantit.	  	  
6c	To be able to convert between fractions, decimals and percentages.	  	  

Parental Comment	Teacher General Comment	Teacher Investigation Comment

DO YOU DARE TO LEARN?

THE SCHOOL OF THE FUTURE

This ILA will require you to use the following skills :

- Creative and persuasive writing
- Geography skills (maps, environment, drawing to scale)
- History skills (research from the past)

Your mission is to design an overview layout and marketing for a school of the future. You can present your ILA in any way that you like on the double page spread. You may need to stick in extra bits that fold out to get all of your ideas across !

Your finished ILA MUST include :

- A plan view of the school, showing its grounds, location to transport links / pedestrian access etc
- Design of a flyer that promotes the new school and attracts students
- Some research showing how schools were different in the past and the lessons we can learn from them (things you would change / things you would reintroduce)

You should also include a selection of the following things :

- Interview notes from talking to an elderly relative about what school was like for them
- Front page of the new school's website
- Survey of how current students travel to school—and link this to your design (transport links etc)
- Set of school rules for your new school
- How new school building these days are environmentally friendly (green). Do you know how OUR school is 'green' ?

AND OF COURSE INCLUDE YOUR OWN IDEAS THAT WILL MAKE
YOUR ILA ORIGINAL & EXCITING

DO YOU DARE TO LEARN?

Self Evaluation (what you have done well, what you found hard, how you would improve it if you could do it again)

Peer Evaluation (swap your ILA with a classmate so they can comment on your work. They should write about what they think are the best bits, what they can learn from your work and a suggestion on how you could improve it/

PD Tutor Comments

Plan of school (labelled / presentation / scale / transport)	/10
Flyer for New School (accuracy / presentation / persuasiveness)	/10
Research (range / presentation / accuracy / how used)	/10
Own Ideas (how own ideas have enriched the ILA)	/10
Extra Mile Bonus (bonus points for going over and above !)	/10
Total Mark	/50