

Week 3
Term 1
2020



HAWKER COLLEGE

Engage | Inspire | Achieve

**EM1 Learning
Brief: Calculations**

Goals



Goals for this week:

- ascertain the reasonableness of answers to arithmetic calculations (EMA03)
- use leading-digit approximation to obtain estimates of calculations (EMA04)
- use a calculator for multi-step calculations (EMA05)
- check results of calculations for accuracy (EMA06)

Theoretical Components

STEP 1

Resources:

PDF file: Week 3 Notes and Exercises

YouTube Videos: Linked in the PDF File

This Week Knowledge Checklist:

(this lists all the concepts you should have done this week)

- Estimate length, weight, time, and other metrics
- Estimate the value of maths sums
- Round numbers to 10's, 100's, 1000's etc

Order

(Don't know where to start... follow this order)

Step 1
Step 2
Step 3

Practical Components

STEP 2

There are 4 parts to complete from the Week 3 notes, then the final Investigation.

If you haven't completed the work from last week, you need to complete it and hand it in.

Portfolio Task – Investigation/Written Task

STEP 3

Complete the task at the end of the brief and submit your weekly work for checking.

QFO

Quiz/Forum/Other

Remember to scan in when you come to the Maths Area to work and when you leave.

Have you got your QR code or your pin yet?

PART 1 ESTIMATION

We use estimation when we don't want to, don't need to, or can't get the exact answer. It has recently been proven in a research paper that grown adults use MORE ESTIMATION in everyday life, then they do EXACT answers. Estimation is something you need to practise to get good at. Things we estimate often include cost, distance, temperature, length, weight, height and time.

FIRSTLY, TRY THESE QUESTIONS.

PART 1

Money

Imagine you go to the shops and buy the following items. Box of cereal, 2lt carton of milk and a loaf of bread.
How much do you think this will cost?

Distance

How far do you think it is if you were to walk from the college to the Hawker Shops and back?

Temperature

How much hotter or colder than yesterday is it today?

Length

How long do you think the whiteboard wall is in the learning commons?

Weight

How heavy do you think a netbook computer is?

Height

How tall do you think your math teacher is? (Which teacher have you estimated?)

Time

How long do you think it would take you to walk from the Maths staffroom over to the school gym?

PART 2 BIG AND LITTLE THINGS

a) The weight of this pumpkin....



b) The weight of this giant onion...



c) The height of this giant carrot statue..



Explain how you worked this out.....

d) The length of this watermelon float... (how did you do this?)



e) This is the world's smallest horse – how tall do you think it is?



The dog is 70cm tall.

f) Recently in Madagascar, a whole selection of miniature lizard species were discovered. This Chameleon lizard fits on the head of a match – how long do you think it is?



PART 3 ESTIMATION OF WRITTEN MATH PROBLEMS

Often a good way of estimating when doing problems in maths is to ROUND the numbers.

Rounding can be done to round decimals off a calculator, you might ROUND UP to OVER-ESTIMATE, or ROUND DOWN to UNDER-ESTIMATE.

Intro video on rounding

<http://www.youtube.com/watch?v=Y7FekoVid54&list=PL4E3C90726B1F37F0>

PLAY THESE GAMES

Play these games, a minimum of 5-10 minutes on each.

Play this game until you can get through with no mistakes!

<http://www.softschools.com/math/rounding/game/>

http://www.softschools.com/math/practice/rounding_numbers.jsp

PART 4

Estimate the value of these questions, don't work out the exact answer. Indicate as you go if you think the EXACT answer will be MORE or LESS than the answer you have estimated.

QUESTION 1

Subtraction

Example $168 - 97$.

Firstly, round and change the question to $170 - 100$, then I get the rounded answer of 70.

- a) $91 - 47$
- b) $104 - 56$
- c) $1194 - 583$
- d) $23,770 - 14,789$
- e) $452,335 - 233,667$

QUESTION 2

Addition

Example $168 + 97$

Firstly, round and change the question to $170 + 100$, then I get the rounded answer of 270.

- a) $98 + 49$
- b) $105 + 68$
- c) $2105 + 901$
- d) $4287 + 4265$
- e) $401,698 + 298,032$

QUESTION 3

Multiplication

Example 224×3

Firstly, round and change the question to 200×3 , then I get the rounded answer of 600.

- a) 198×5
- b) 987×43
- c) 87×39
- d) 29×5699
- e) $99,987 \times 99$

QUESTION 4

Division

Example $285 \div 2$

Firstly, round and change the question to $300 \div 2$, then I get the rounded answer of 150.

- a) $198 \div 5$
- b) $98 \div 51$
- c) $81 \div 39$
- d) $29,840 \div 3$
- e) $99,987 \div 99$

WEEK 3 INVESTIGATION

SPORTS ESTIMATION

This table shows the percent of annual hospital visits due to sports injuries by males ages 15 – 19.

Percent of Male Sports-Related Injuries in the U.S.			
Sport	Percent	Sport	Percent
Basketball	25.9	Boxing, Wrestling	4.4
Football	21.3	Exercise	3.8
Baseball/softball	4.1	Bicycling	8.1
Soccer	4.6	Skateboarding	3.6

<p>Question 1 Estimate the total percentage of hospital visits due to injuries in baseball/softball, exercising, skateboarding and boxing.</p>	<p>Question 2 About how many more visits were due to football injuries than soccer injuries?</p>	<p>Question 3 – About basketball Lynne dribbled a basketball for 43 seconds before Greg got the ball away. Then Greg dribbled the ball for 11.525 seconds before Len got the ball. Use estimation to estimate how many more seconds Lynne dribbled the ball than Greg.</p>
<p>Question 4 – about skateboarding Kevin completes a number of moves in a skateboard competition, the first was airborne for 3.42seconds, the second he was airborne for 1.85seconds and the third he was airborne for 2.49seconds. About how long in total was he airborne?</p>	<p>Question 5 Are there any injuries not accounted for in the above table? How do you know? What percentage if there are.</p>	<p>Question 6 What combination of sports accounts for about 50% of all injuries to the hospital?</p>

Write your answers to these on the next piece of paper, explain for every question HOW you did it and the rounding you used.