7-9: REMOTE MATHS

EDITION 1

CALCULATION OF TIME

Mathematical language: Hour, minute, seconds, analogue, digital, clock, morning, afternoon, o'clock, half past, noon, timer, watch, time zones.

TASK 1: AUSTRALIAN TIME ZONES

Victoria, South Australia and Western Australia do not agree what time 9:00am is.

* Investigate Australian time zones and complete this table to indicate comparable time with each of the other states and territories during non-daylight savings time. i.e. if it is 9:00am in Victoria it is what time in South Australia.

VIC	NSW	QLD	TAS	NT	SA	WA
9am						

Further support: www.worldtimezone.com/time-australia.htm

* Watch this video: https://education.abc.net.au/home#!/media/1950553/how-many-time-zones-are-there-in-australia
* What are some of the challenges with Australia's current time zones?

TASK 2: INTERNATIONAL TIME ZONES

Investigate Greenwich Mean Time (GMT) and time zone calculations:

* Why was GMT created?
* Which country experiences a 'new day' first?
* Which country is the last to say goodbye to a day?

TASK 3: 24 HOUR TIME

Watch this video https://education.abc.net.au/home#!/media/1566174/

* Create a timetable for your week using 24-hour time
* Include meal breaks, exercise and brain pauses, time to learn and time to have a break.

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TASK 4: TIME CALCULATIONS

Last night I spent 3 hours and 10 minutes at the tennis court. I played for more than 1.5 hours and rested for more than 1.25 hours.

- What are all the possibilities for how long I played for and how long I rested?
- *Extending prompt:* Can you find a rule to help you calculate time?

Three songs are played uninterrupted on the radio. The first song goes for 3 minutes and 27 seconds, the next song goes for 5 minutes and 35 seconds and the third one goes for 4 minutes and 47 seconds.

- How long would it take to play all three songs?
- If the start time for the first song was 2:39pm, what time would the last song finish playing?

TASK 5: TIME FOR A BATH

It takes 1 hour and 15 minutes to fill a 100 litre bathtub, how long would it take to collect enough water to fill 4 five litre water bottles?

- Explain your working out with drawings, numbers, equations and/or words.
- *Enabling prompt:* If it took 60 minutes to fill a 100 litre bathtub, how long would it then take to fill up 2 twenty-five litre buckets of water?
- *Extending prompt:* If it took 90 minutes to fill up a 120 litre bath. After 22.5 minutes, how much water would be in the bath?

MATHS APP OF THE WEEK: INFINITE VOYAGE

Infinite Voyage takes place on a spaceship that is searching for suitable places where humankind can relocate. To keep the spaceship running, there are a variety of challenges to complete.

Infinite Voyage uses gamification principles to increase confidence in and engagement with mathematics.

Google Play: https://play.google.com/store/apps/details?id=au.gov.vic. education.infinitevoyage&hl=en_AU

iOS: https://apps.apple.com/au/app/infinite-voyage/id1385878311

Cost: Free

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MODEL AND REPRESENT NUMBERS

Mathematical language: Fraction, multiple, divide, subtract, add, equivalent, compare, equation, expression.

TASK 1: COLORED CIRCLES   *Task adapted from Math for Love, 2019.*

- Can you explain why different numbers have different colours? Why are some numbers broken into segments? Why do some numbers have more than one color?
- Could you predict what 25, 33, and 48 might look like?
- Can you represent the numbers 15, 16, 17 and 18 numerically, in a number sentence (equation) that gives the same information as the circles do? Can you find a shorter way to write these number sentences (equations) to avoid the repetition of numbers?

TASK 2: CLOSE TO BEING WHOLE   *Task adapted from Nrich.*

- Choose fractions from this list, you can choose as many as you want but cannot repeat a fraction.
- Without using a calculator, add the fraction you chose. Can you get close to 1? Which selection of fractions, when added, will give you the closest total to 1?
- Now use any of the four operations: + – × ÷, does that help you get closer to 1?

$\frac{1}{6}$	$\frac{1}{25}$	$\frac{3}{5}$	$\frac{3}{20}$	$\frac{4}{15}$	$\frac{5}{8}$

TASK 3: WHICH IS LARGER?
- Without using a calculator, work out which is larger. Prove it to somebody in your family.

3^4	or	4^3
$(-2)^5$	or	$(-2)^4$
0	or	37^0
0.25×972	or	972-25
$\dfrac{3}{5}$	or	$\dfrac{16}{27}$
$\dfrac{3}{4}$	or	$\dfrac{301}{401}$

TASK 4: AN EXPRESSION OF POWER
- Without using a calculator, tick all the equivalent expressions to $(5 + 9)^4$

$5^4 + 9^4$	14^4	$(5+9) \times (5+9) \times (5+9) \times (5+9)$	$5 \times 5 \times 5 \times 5 + 9 \times 9 \times 9 \times 9$	$5 \times 5 \times 5 \times 5 \times 9 \times 9 \times 9 \times 9$	14×4

- Now use a calculator to evaluate $(5 + 9)^4$ and check that your ticked answers above all equal the same amount.
- *Extending prompt:* Tick all the equivalent expressions to $(x + y^2)^3$

$(x + y^2) + (x + y^2) + (x + y^2)$	$x^3 + y^6$	$(x + y^2) \times (x + y^2) \times (x + y^2)$

- Write 'is equal to =' or 'is not equal to ≠' in the space below.
- $(a + b)^x$ _____ $a^x + b^x$

Look out for more tasks next week!