INVESTIGATING DECIMAL NUMBERS – TOPIC SUMMARY

For Year Level 8

This material relates to the following Australian Curriculum (Mathematics)
Outcome/s: Investigate terminating and recurring decimals (ACMNA184)

Rationale for Use

It is expected that students will have access to an array of practice material in the form of textbooks or school prepared exercises. The purpose of the AMSI materials is to support the development of **understanding** and **reasoning** about the concepts involved. They complement and enhance the teacher instruction elements of normal classroom instruction.

Explanation (What this includes):

Students investigate terminating and recurring decimals by:

- Using the correct mathematical notation (symbols) for recurring (repeating) decimals, e.g. $0.33333\ldots = 0.\dot{3}$, $0.345345345\ldots = 0.\dot{3}\dot{4}\dot{5}$, $0.266666\ldots = 0.2\dot{6}$
- Converting fractions into terminating or recurring decimals as appropriate. (Some fractions don't convert into nice 'neat' decimal numbers, like $\frac{1}{2}$ (0.5) or $\frac{3}{8}$ (0.375) !); and
- Recognising that calculators may show *approximations* of recurring decimals - and explaining why, e.g. $\frac{2}{3}$ is displayed as 0.66666667 on most calculators – *why?*

Resources:

1. **Run the 'Investigating terminating and recurring decimals' interactive introduction.**

   This will explain what 'terminating' and 'recurring' decimals actually are – and importantly, how they are used in the real world. (Click on the link on the Calculate page to run this).

2. **Explore the AMSI Schools Supporting Australian Mathematics (SAM) Project module** 'Investigating terminating and recurring decimals' - http://www.amsi.org.au/ESA_middle_years/Year8/Year8_md/Year8_1b.html. Read through the introduction and then work through each of the 'Student Resources' tabs on this topic. A short self-quiz is included throughout this little unit – have a go!

3. **Watch some handy online videoclips:**

   - FuseSchool - Converting between recurring decimals and fractions: https://www.youtube.com/watch?v=oDSx2pihgJ0; then
   - Mr Woo's WooTube - 'Recurring Decimals and Fractions': https://www.youtube.com/watch?v=GRXm11sF6rI

4. **Play some games and have fun with some activities!** Here are a few ideas to have fun with on the 'N-Rich' and 'Calculate' mathematics websites:

   - 'Spiralling Decimals' - https://nrich.maths.org/10326

- ‘Repetitiously’ - https://nrich.maths.org/1853
- ‘Tiny Nines’ - https://nrich.maths.org/1832
- ‘Matching Fractions, Decimals and Percentages’ - https://nrich.maths.org/1249
- ‘Mastermind’ (try this game with decimal numbers!) - https://calculate.org.au/2018/06/20/mastermind/

5. Use your maths textbook to practice some examples.

Look up ‘Decimals’ in your textbook and look for the chapter or section that deals with using decimal notation; converting fractions into decimals (and vice-versa); and rounding decimal numbers.

Use the review exercises and problems in your book to practice some of these questions and concepts.