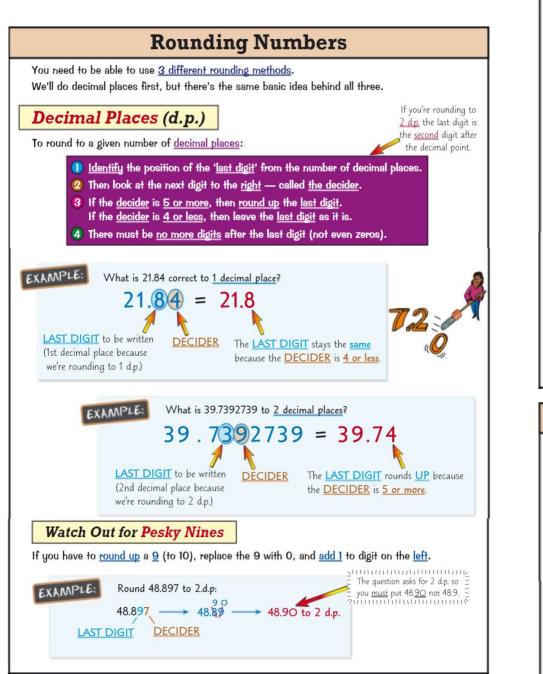
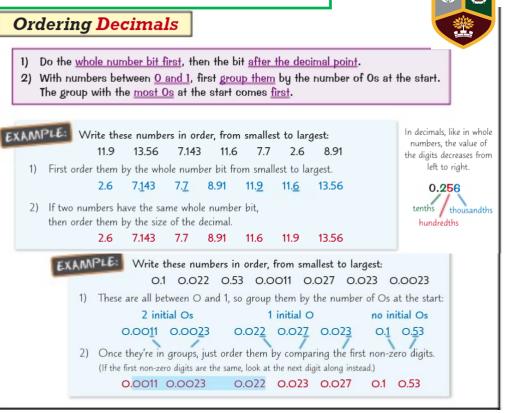
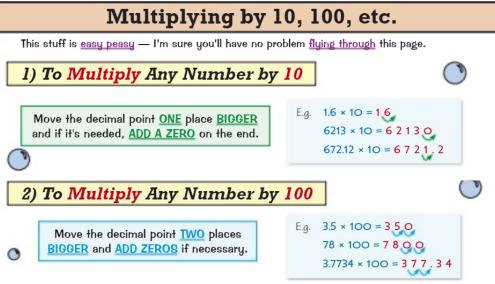
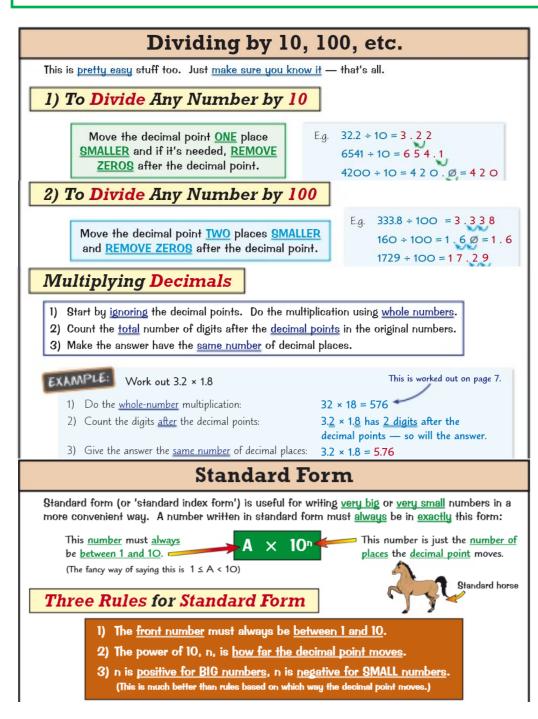
Knowledge Organiser: Year 9 Maths; Decimals and Place Value (Part 1)







Knowledge Organiser: Year 9 Maths; Decimals and Place Value (Part 2)



I mee importan	t Examples	1	
 Express 259000 in sta Move the decimal po The decimal point has 259 000 is a big n 	<u>int</u> until 259 000 becor s moved <u>5 places</u> so n = 5	ö, giving: 10 ⁵ .	.59000 2.59 × 10 ⁵
So the power of 1	must move <u>3 places</u> to g		0.00335 = 3.35 × 10 ⁻³
 First <u>convert</u> all the nu 6880 = 6.88 × 10³ 	× 10 ⁻⁴ 6880 imbers into <u>standard form</u> 0.000134 = 1 ers with the <u>same power</u> t	3.12 × 10 ⁴ 6.75 × 10	used on the power.
Roundin	ng Errors a	nd Estima	ting
"Estimate" doesn't mean "tal	ke a wild guess", so do	on't just make something	g up
If you're given a <u>rounded val</u> could have been, remember:			
could have been, remember: Whenever a v be up to	value is rounded to a giv	ven unit the actual value <u>UNIT</u> bigger or smaller. rounded values lie?	
Could have been, remember: Whenever a v be up to XAMPLE: Between which a) 70 to the nearest 10	ralue is rounded to a given by the four of the four o	ven unit the actual value <u>UNIT</u> bigger or smaller. rounded values lie? <u>Smallest value</u> 70 - 5 = 65	<u>Biggest value</u> 70 + 5 = 75
Whenever a v be up to Between which a) 70 to the nearest 10 b) 1100 to the nearest 100	two values could the a given by the formula of the	ven unit the actual value <u>UNIT</u> bigger or smaller. rounded values lie? <u>Smallest value</u> 70 - 5 = 65 1100 - 50 = 1050	<u>Biggest value</u> 70 + 5 = 75 1100 + 50 = 1150
AMPLE: a) 70 to the nearest 10 b) 1100 to the nearest 100 c) 9.2 to 1 d.p.	two values could the a given by the formula of the	ven unit the actual value <u>UNIT</u> bigger or smaller. rounded values lie? <u>Smallest value</u> 70 - 5 = 65 1100 - 50 = 1050 9.2 - 0.05 = 9.15	Biggest value 70 + 5 = 75 1100 + 50 = 1150 9.2 + 0.05 = 9.25
AMPLE: be up to Between which a) 70 to the nearest 10 b) 1100 to the nearest 100 c) 9.2 to 1 d.p. d) 99 to 2 s.f.	two values could the a given by the formula of the	ven unit the actual value <u>UNIT</u> bigger or smaller. rounded values lie? <u>Smallest value</u> 70 - 5 = 65 1100 - 50 = 1050	<u>Biggest value</u> 70 + 5 = 75 1100 + 50 = 1150
could have been, remember: Whenever a v be up to EXAMPLE Between which a) 70 to the nearest 10 b) 1100 to the nearest 100 c) 9.2 to 1 d.p. d) 99 to 2 s.f. e) 1.14 to 3 s.f. The biggest value doesn't act upper limit. You can show th E.g. in part c) above the rang	two values could the a given by the the rounding unit 10 + 2 = 5 100 + 2 = 50 0.1 + 2 = 0.05 1 + 2 = 0.05 1 + 2 = 0.05 0.01 + 2 = 0.005 the the round to the rounding the rounding the the rounding the the rounding the rounding the the rounding t	ven unit the actual value <u>UNIT</u> bigger or smaller. rounded values lie? <u>Smallest value</u> 70 - 5 = 65 1100 - 50 = 1050 9.2 - 0.05 = 9.15 99 - 0.5 = 98.5 1.14 - 0.005 = 1.135 ded value (it rounds up e of values as an <u>inequa</u>	$\frac{Biggest value}{70 + 5 = 75}$ $1100 + 50 = 1150$ $9.2 + 0.05 = 9.25$ $99 + 0.5 = 99.5$ $1.14 + 0.005 = 1.145$) — it's called the lifty (see p37).
Could have been, remember: Whenever a visual be up to Even which a) 70 to the nearest 10 b) 1100 to the nearest 100 c) 9.2 to 1 d.p. d) 99 to 2 s.f. e) 1.14 to 3 s.f. The biggest value doesn't act upper limit. You can show th E.g. in part c) above the rang Estimating	two values could the a given by the the rounding unit $10 \div 2 = 5$ $100 \div 2 = 50$ $0.1 \div 2 = 50$ $0.1 \div 2 = 50$ $0.1 \div 2 = 50$ $1 \div 2 = 0.05$ $1 \div 2 = 0.05$ $1 \div 2 = 0.005$ the the rough the the rough the ro	ven unit the actual value <u>UNIT</u> bigger or smaller. rounded values lie? <u>Smallest value</u> 70 - 5 = 65 1100 - 50 = 1050 9.2 - 0.05 = 9.15 99 - 0.5 = 98.5 1.14 - 0.005 = 1.135 ded value (it rounds up e of values as an <u>inequa</u> ues would be $9.15 \le x \le 3$	$\frac{Biggest value}{70 + 5 = 75}$ $1100 + 50 = 1150$ $9.2 + 0.05 = 9.25$ $99 + 0.5 = 99.5$ $1.14 + 0.005 = 1.145$ $) - it's called the$ $Iity (see p37).$ $< 9.25.$
could have been, remember: Whenever a v be up to Education AMPLE: Between which a) 70 to the nearest 10 b) 1100 to the nearest 100 c) 9.2 to 1 d.p. d) 99 to 2 s.f. e) 1.14 to 3 s.f. The biggest value doesn't act upper limit. You can show th E.g. in part c) above the rang Estimating When you're estimating just	two values could these of HALF THE ROUNDING two values could these of Half the rounding unit $10 \div 2 = 5$ $100 \div 2 = 50$ $0.1 \div 2 = 0.05$ $1 \div 2 = 0.5$ $0.01 \div 2 = 0.005$ the round to the round his if you give the range ge of the possible x values follow this simple rule:	ven unit the actual value <u>UNIT bigger or smaller</u> . rounded values lie? <u>Smallest value</u> 70 - 5 = 65 1100 - 50 = 1050 9.2 - 0.05 = 9.15 99 - 0.5 = 98.5 1.14 - 0.005 = 1.135 rded value (it rounds up e of values as an <u>inequa</u> ues would be 9.15 $\leq x < \frac{1}{2}$	$\frac{Biggest value}{70 + 5 = 75}$ $1100 + 50 = 1150$ $9.2 + 0.05 = 9.25$ $99 + 0.5 = 99.5$ $1.14 + 0.005 = 1.145$ $) it's called the$ $\frac{Ity}{100} (see p37).$ $< 9.25.$
could have been, remember: Whenever a v be up to ExAMPLE a) 70 to the nearest 10 b) 1100 to the nearest 100 c) 9.2 to 1 d.p. d) 99 to 2 s.f. e) 1.14 to 3 s.f. The biggest value doesn't act upper limit. You can show the E.g. in part c) above the range Estimating When you're estimating just	two values could these of HALF THE ROUNDING two values could these of Half the rounding unit $10 \div 2 = 5$ $100 \div 2 = 50$ $0.1 \div 2 = 0.05$ $1 \div 2 = 0.5$ $0.01 \div 2 = 0.005$ the round to the round his if you give the range ge of the possible x values follow this simple rule:	ven unit the actual value <u>UNIT</u> bigger or smaller. rounded values lie? <u>Smallest value</u> 70 - 5 = 65 1100 - 50 = 1050 9.2 - 0.05 = 9.15 99 - 0.5 = 98.5 1.14 - 0.005 = 1.135 ded value (it rounds up e of values as an <u>inequa</u> ues would be $9.15 \le x \le 3$	$\frac{Biggest value}{70 + 5 = 75}$ $1100 + 50 = 1150$ $9.2 + 0.05 = 9.25$ $99 + 0.5 = 99.5$ $1.14 + 0.005 = 1.145$ $) it's called the$ $\frac{Ity}{100} (see p37).$ $< 9.25.$
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How can you use knowledge organisers at home to help us?

- **Retrieval Practice:** Read over a section of the knowledge organiser, cover it up and then write down everything you can remember. Repeat until you remember everything.
- **Flash Cards:** Using the Knowledge Organisers to help on one side of a piece of paper write a question, on the other side write an answer. Ask someone to test you by asking a question and seeing if you know the answer.
- **Mind Maps**: Turn the information from the knowledge organiser into a mind map. Then reread the mind map and on a piece of paper half the size try and recreate the key phrases of the mind map from memory.
- **Sketch it**: Draw an image to represent each fact; this can be done in isolation or as part of the mind map/flash card.
- **Teach it:** Teach someone the information on your knowledge organiser, let them ask you questions and see if you know the answers.

How will we use knowledge organisers in Mathematics?

Knowledge organisers will be used before I complete a Learning Check or Common Assessment. I will spend part of the lesson looking over each of the key topics of the half term before completing the Learning Check or Common Assessment.

I will also use these at home to complete my own independent learning and revision of these key topics.

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