Reasoning and Problem Solving
Decimals – Year 5

About This Resource

This resource is aimed at Year 5 Expected and has been designed to give children the opportunity to consolidate the skills they have learned in Summer Block 1 Decimals.

The questions are based on a selection of the same 'small steps' that are addressed in the block, but are presented in a different way so children can work through the pack independently and demonstrate their understanding and skills.

Small Steps

Adding decimals within 1
Subtracting decimals within 1
Complements to 1
Adding decimals – crossing the whole
Adding decimals with the same number of decimal places
Subtracting decimals with the same number of decimal places
Adding decimals with a different number of decimal places
Subtracting decimals with a different number of decimal places
Adding and subtracting wholes and decimals
Decimal sequences
Multiplying decimals by 10, 100 and 1,000
Dividing decimals by 10, 100 and 1,000

National Curriculum Objectives

Mathematics Year 5: (5F10) Solve problems involving number up to three decimal places
Mathematics Year 5: (5C7a) Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
Mathematics Year 5: (5M9a) Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling

Did you like this resource? Don't forget to review it on our website.

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Record Breakers!

The Record Breakers verification team is gathering data on all the record attempts submitted over the last 6 months. They need your help – you'd better get started...

Highest double standing jump by an under 10

The current record for the highest double standing jump is 0.98m. This is calculated by combing the height of both jumps.

At a recent event the following jumps were recorded:

1. Combine the jumps of each competitor to calculate if anyone beat the record.

Competitor	JUMP 1	JUMP 2	Combined
1	0.32	0.45	
2	0.46	0.44	
3	0.34	0.65	
4	0.57	0.45	

Which competitor holds the new record?

Smallest statue in the world



Needle sculptors use magnifying glasses to carve intricate sculptures in the eye of a needle! Last year's record was 0.735cm for the height of the sculpture.

This year each sculpture must have a plinth to stand on, but it will not be counted in the final measurement.

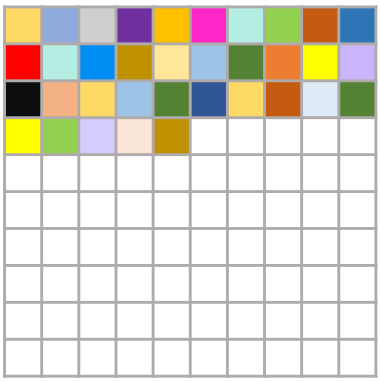
2. Find the height of each sculpture without the plinth.

full height	plinth height	sculpture height
0.956	0.234	
0.983	0.142	
0.998	0.189	
0.887	0.098	

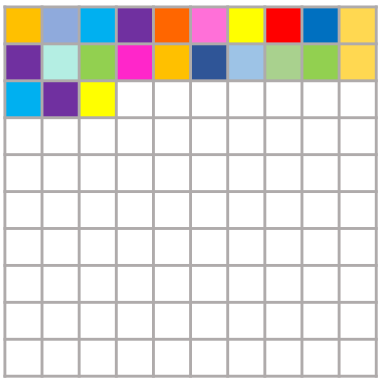
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Fastest patchwork quilt ever made!

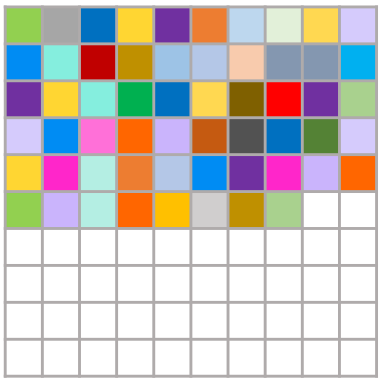
Bids for the world record are being closely monitored to ensure there are no pre made blankets entered. Competitors must upload photos of their blankets every hour.
Here are three entries after the first hour.



completed 0.35 of the whole



completed 0.23 of the whole



completed 0.58 of the whole

3. How much more of the whole does each competitor have to sew?

Four other competitors sent a text update.







4. How much more do these competitors have to sew until they are complete?

Fastest Finger First

These competitors must respond to a sound played in their earphones by hitting a button as fast as they can. The current record is 1 second.
There have been contests around the country and each area has sent their fastest time. However, some of the data has not uploaded correctly.

5. Complete the table to find the fastest finger!
Which areas have beaten the record?
Which area is the new record holder?

Area	Reaction time	+ or – record
North	0.963	
South		– 0.074
West	1.002	

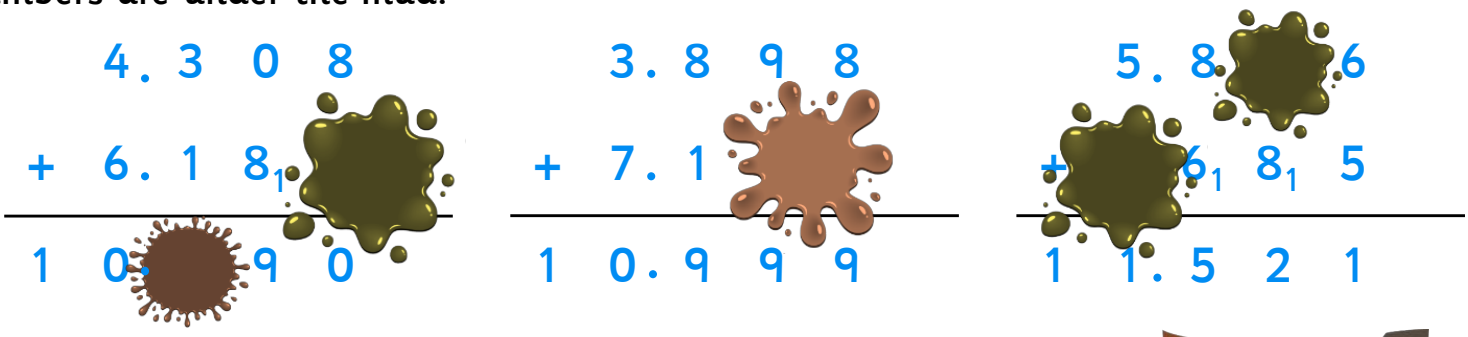
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Tough Mudder

Results have arrived from two muddy obstacle course events, but the calculators have gone missing. The officials are completing the results using column addition.

6. Mud splashes have covered some of the data. Help the officials to work out what numbers are under the mud.



High Climbers



The mountaineer race was a huge success, as the best climbers from around the world came together to surmount this record.

Results are being calculated, with time deducted for the breaks they are allowed.

7. Complete the table to find each climber's result.

Country	Climbing Time	Resting Time	Result
Canada	20.233	5.213	
UK	21.432	1.663	
Switzerland	22.09	3.986	
India	20.873	2.857	

Which country has the fastest climber?

Dare Devils



The snowboarding world is full of record breakers. The height of a free jump changes as riders become more daring and equipment is improved.

To ensure measurement is fair the height of the kicker is discounted from the height of the jump.

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8. Complete the table below to ensure all the data is fully recorded.

The record holder is...

Rider	Kicker Height	Total Height	Jump Height
Kyle	2.5m	6.345m	
Angie	3.9m	7.89m	
Debs	2.85m	6.475m	
Leigh	2.735m	5.6m	

Heavy Lifters

Weight lifting training season is under way. The contestants track their improvement and the organisers then estimate what their final lifting weight will be.

9. Complete the table to calculate an estimate. Assume every contestant maintains the same increase each month.

Contestant	J	F	M	A	M	J	J
Geoff	13.35kg	13.5kg	13.65kg				
Shirley	12.09kg	12.89kg					
Scott	10.65kg	10.99kg					

Phew! The hard work is done!



There is a huge launch to celebrate the 100th year of the Record Breakers book being published.

Tickets will be sold to websites in bundles of 10, 100, and 1,000.

10. Calculate the prices for each bundle:

Ticket Type	Cost	x10	x100	x1,000
Adult	£5.95			
OAP	£3.45			
Child	£1.75			
Student	£2.55			

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A VIP package will be available to purchase.
The prices have been emailed for each item.

11. Calculate the cost per person for each item, round to the nearest penny.

to:	accounts@recordbreakers.co.uk
bc:	
cc:	

See below for prices as requested:

Printed t shirts	£35.90 per 10 shirts ordered
Logo caps	£156.30 per 100 caps ordered
Flag	£18.00 per 10 flags ordered
Whistles	£18.50 per 100 whistles ordered
Rain poncho	£12.60 per 1,000 ponchos
Logo pen	£5.95 per 100 pens
Printed programme	£532 per 100 programmes

Hope you find these useful, get in touch if you'd like to place an order.

12. How much will a VIP package be?
This will include one of each item plus £5.

Record Breakers!

Launch day is here! All your hard work has paid off, the records are printed in the book ready to be published and make history...

Time to start again for next year!

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1.

Combined
0.77
0.9
0.99
1.02

Competitors 3 and 4 beat the record.
Competitor 4 holds the record now.

2.

sculpture height
0.722
0.841
0.809
0.789

3. 0.65, 0.77, 0.42
4. 0.63, 0.49, 0.72
5.

Area	Reaction time	+ or – record
North	0.963	– 0.037
South	0.926	– 0.074
West	1.002	+ 0.002

The north and south have beaten the current record.
The south has the new record holder.

6.

$$\begin{array}{r} 4.308 \\ +\ 6.1\,8_{1}\,2 \\ \hline 10.490 \end{array} \qquad \begin{array}{r} 3.898 \\ +\ 7.101 \\ \hline 10.999 \end{array} \qquad \begin{array}{r} 5.836 \\ +\ 5_{1}.6_{1}\,8_{1}\,5 \\ \hline 11.521 \end{array}$$

7.

Result
15.02
19.769
18.104
18.016

Canada has the fastest climber.

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8.

Jump Height
3.845
3.99
3.625
2.865

The record holder is Angie

9.

Contestant	J	F	M	A	M	J	J
Geoff	13.35kg	13.5kg	13.65kg	13.8kg	13.95kg	14.1kg	14.25kg
Shirley	12.09kg	12.89kg	13.69kg	14.49kg	15.29kg	16.09kg	16.89kg
Scott	10.65kg	10.99kg	11.33kg	11.67kg	12.01kg	12.35kg	12.69kg

10.

Cost	x10	x100	x1,000
£5.95	£59.50	£595	£5,950
£3.45	£34.50	£345	£3,450
£1.75	£17.50	£175	£1,750
£2.50	£25	£250	£2,500

11. T shirts £3.59, Caps £1.56, Flag £1.80 Whistle 19p Poncho 1p Pen 6p Programme £5.32

Total for one VIP pack is £17.53

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