
















Measurement: Out Shopping

<p>Aim: I can read, write and convert between standard units of mass.</p> <p>I can read, write and convert between standard units of mass.</p>	<p>Success Criteria: I can convert kilogram measurements with fractional quantities, to grams.</p> <p>I can convert units of mass by multiplying and dividing by one thousand.</p> <p>I can solve mass problems involving conversion between kilograms and grams.</p> <p>I can use up to three decimal places when reading, writing and converting units of mass.</p>	<p>Resources: Lesson Pack</p> <p>Individual whiteboards and pens – class set</p>
	<p>Key/New Words: Mass, convert, kilogram, gram.</p>	<p>Preparation: Converting Measurement Units Fortune Teller – one per pair</p> <p>Differentiated Out Shopping Activity Sheet – one per child</p> <p>Extra Challenge Activity Sheet – as required</p>

Prior Learning: It will be helpful if children know the basic conversions of metric measurements of mass.

Learning Sequence

	<p>Fortune Teller: In pairs, children use the Converting Measurement Units Fortune Teller. The fortune teller practises basic conversions for length, mass, volume and time. Children can devise their own questions using a blank fortune teller template.</p>	
	<p>Converting from Larger Units to Smaller: Children practise converting from kilograms to grams by multiplying by one thousand. They convert from kilograms with fractional quantities (for e.g. $4\frac{1}{4}$ kg), where the question is a whole number (for e.g. 2kg). Measurements are up to three decimal places (for e.g. 2.1kg, 4.25kg, 8.755kg).</p>	
	<p>Converting from Smaller Units to Larger: Children practise converting from grams to kilograms by dividing by one thousand. They convert from grams where the question is a whole number and where the question is up to three decimal places.</p>	
	<p>Whose Bag Weighs Most? Children complete a word problem, involving conversion of mass units. They calculate which shopping bags have a mass greater than 5kg. They calculate the mass of a variety of items in each bag, some written in grams, some in kilograms. They balance one of the bags, separating the items into two bags. Ask children to share how they separated the items.</p>	

	<p>Converting Units of Mass: Children complete the Out Shopping Activity Sheet, converting from larger units of mass to smaller units and from smaller units to larger units and solving problems involving conversion.</p> <div style="display: flex; justify-content: space-between;"> <div data-bbox="231 212 590 683">  <p>Children convert from kilograms to grams and vice versa. Conversions are whole numbers and with three decimal places. They solve a simple comparison problem, involving converting between grams and kilograms. They write their own problem, which involves conversion between grams and kilograms. They give an answer to their own problem.</p> </div> <div data-bbox="614 212 973 806">  <p>Children convert from kilograms to grams and vice versa. Conversions are whole numbers and with one, two and three decimal places. They chose a measurement (out of three given) which fits between two other measurements. They solve a problem, involving converting between grams and kilograms. They write their own problem, which involves conversion between grams and kilograms. They give an answer to their own problem.</p> </div> <div data-bbox="997 212 1356 952">  <p>Children convert from kilograms to grams and vice versa. Conversions are whole numbers and with one, two and three decimal places. They chose a measurement (out of several given) which fits between two other measurements. They solve a problem, involving converting between grams and kilograms. They write their own problem, involving converting between grams and kilograms. The problem needs to include a multiplication calculation. They give an answer to their own problem. An Extra Challenge Activity Sheet is also included.</p> </div> </div>	
	<p>Who is Correct? Children solve problems involving calculation of mass, where one measurement is written in kilograms and the other in grams. Children decide who is making a statement which is correct. Reveal the correct answer and ask for somebody to explain why this is the correct answer.</p>	

<p>Explore it</p> <p>Measure it: Children estimate the mass of objects around the classroom. They use scales to weigh them and record answers in both kilograms and grams. They order the objects from lightest to heaviest.</p> <p>Make it: Children make a board game to practise the skills learned in the lesson. The game is to include a set of cards which ask conversion questions. Once the game has been made, groups can play the game and review the suitability of it.</p>
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Maths

Measurement

Out Shopping



Aim

- I can read, write and convert between standard units of mass.

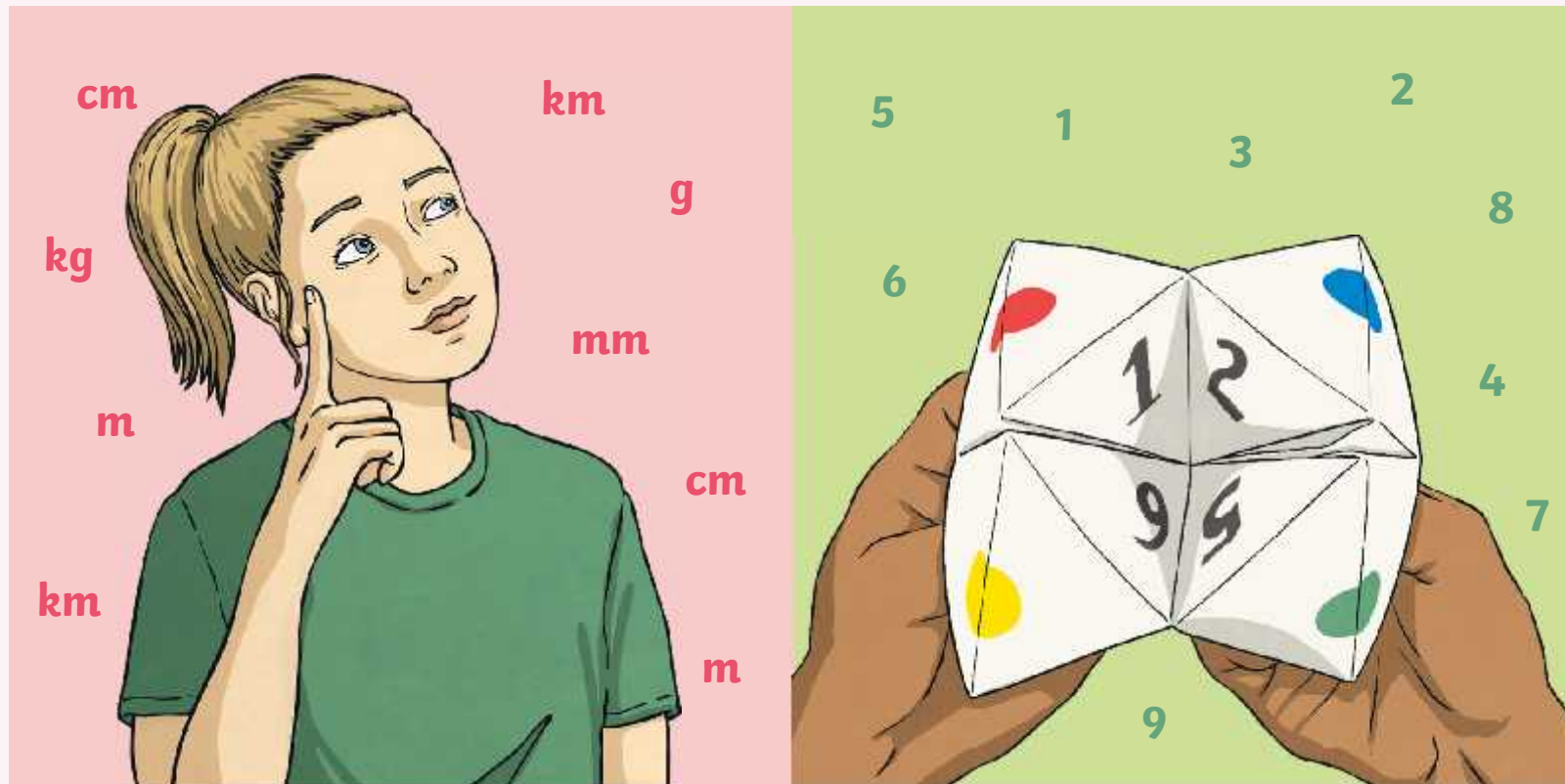
Success Criteria

- I can convert kilogram measurements with fractional quantities, to grams.
- I can convert units of mass by multiplying and dividing by one thousand.
- I can solve mass problems involving conversion between kilograms and grams.
- I can use up to three decimal places when reading, writing and converting units of mass.

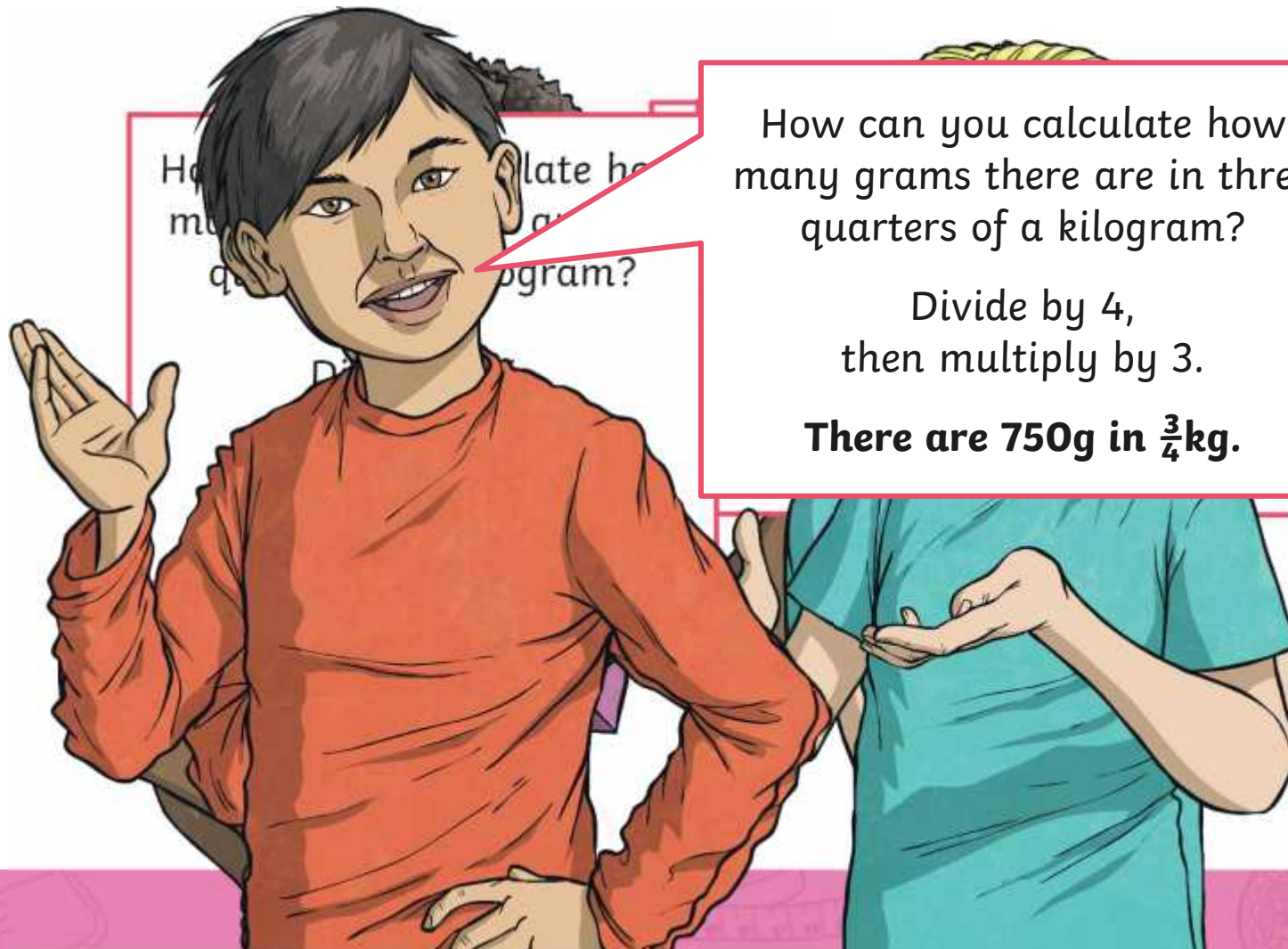
Fortune Teller



In your pairs, use the **Converting Measurement Units Fortune Teller** to practise basic conversion of mass, length, time and volume. Use the blank template to make your own Fortune Teller.



Converting from Larger Units to Smaller



Converting from Larger Units to Smaller



Speed Task: Convert these amounts from kg to g as fast as you can!

Set A

1) $2\frac{1}{2}$ kg **2500**

2) $3\frac{1}{4}$ kg **3250**

3) $1\frac{3}{4}$ kg **1750**

4) $3\frac{1}{2}$ kg **3500**

5) $7\frac{3}{4}$ kg **7750g**

Set B

1) $6\frac{1}{4}$ kg **6250**

2) $8\frac{3}{4}$ kg **8750**

3) $7\frac{1}{2}$ kg **7500**

4) $2\frac{3}{4}$ kg **2750**

5) $1\frac{1}{4}$ kg **1250g**

Set C

1) $10\frac{3}{4}$ kg **10 750kg**

2) $9\frac{1}{2}$ kg **9500g**

3) $8\frac{3}{4}$ kg **8750g**

4) $2\frac{1}{4}$ kg **2250g**

5) $6\frac{1}{2}$ kg **6500g**

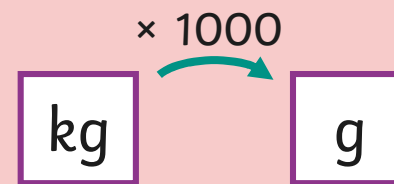
Show Answers

Converting from Larger Units to Smaller



How do you convert from kilograms to grams?

Multiply by 1000.



Sophie has been converting these measurements. Is she correct?
Place a tick by the ones correct and a cross by the ones not.

1.655kg	3.956kg	7.75kg	9.12kg	2.6kg	7.9kg
1655g ✓	3956g ✓	7750g ✗	9120g ✓	2600g ✓	7900g ✗

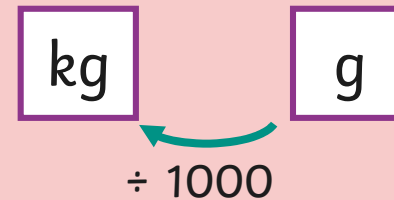
Correct any conversions which are incorrect.



Converting from Smaller Units to Larger

How do you convert from grams to kilograms?

Divide by 1000.



Match the measurements on the left to the ones on the right. There is one pair which does not match. Can you find the incorrect match?

What is the correct conversion for 39g?

39g = 0.039kg

3009g

3900g

309g

3090g

3903g

39g

3.09kg

0.39kg

3.9kg

3.009kg

0.309kg

3.903kg

What is the correct conversion for 0.39kg?

0.39kg = 390g

incorrect match!

Whose Bag Weighs Most?



Three friends have been shopping. The following items are inside each person's bag. Do any of the bags have a mass greater than 5kg? Remember to use the same unit of measurement. Either convert all measurements to grams, or convert all measurements to kilograms for you.

Answer

- 1500g potatoes
- 3 tins weighing 350g each
- A carton of orange juice
- 5 packets of plain milk



Chad's and Sunita's bags are over 5kg.



h

g 1.95kg

- 2.2kg fruit
- 2 bottles washing up liquid, each weighing 235g
- Washing powder weighing 1.06kg
- 3 tins each weighing 350g

Total:
7625g
=
7.625kg

Chad's Bag

Total:
4780g
=
4.78kg

Tyreec's Bag

Total:
6350g
=
6.35kg

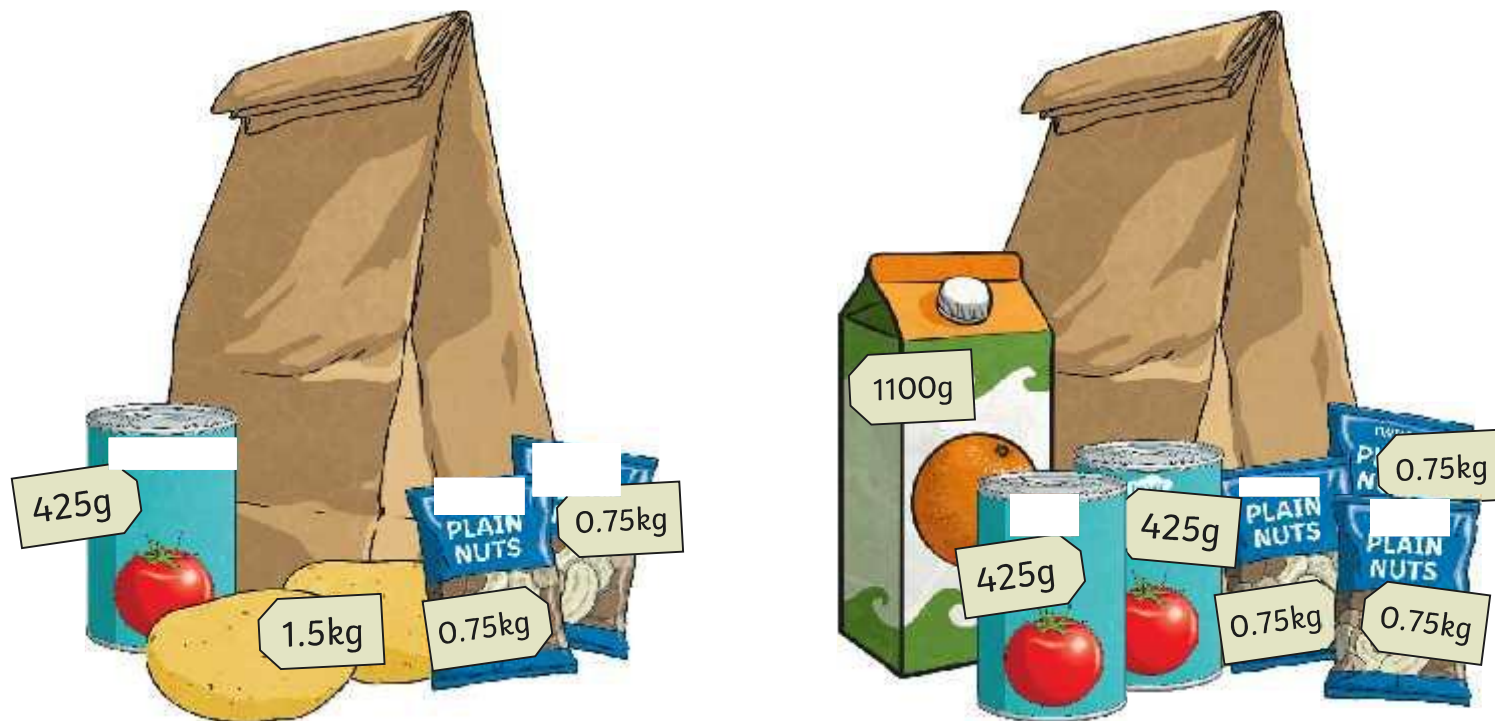
Sunita's Bag

Whose Bag Weighs Most?



Chad decides to separate his items into two bags.

How can he separate the bags so that they are fairly equally balanced? Here is one way. Can you separate the items so that they are more evenly balanced?



Out Shopping



Out Shopping

1. Write the number names for each of the numbers.



2. Write the number names for each of the numbers.

10kg	7kg	4kg	8kg 500g	6kg 50g	7kg 500g
100g	100g	100g	100g	100g	100g
100g			100g		

3. The table shows some weights in kg and 100g. It is broken. Rank the weights in the table from heaviest to the lightest.

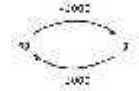
2500g	800g	950g	250g	950g	180g
20g	80kg	95g	800kg	95kg	180kg

4. There are the mass of some items in a shop. Order the set of items according to their mass from smallest to greatest mass.

- 100g
- 100kg
- 100g
- 100kg
- 100g

Out Shopping

1. Write the number names for each of the numbers.



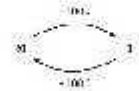
2. Write the number names for each of the numbers.

100g	100g	100g	100g
100g	100g	100g	100g
100g	100g	100g	100g
100g	100g	100g	100g
100g	100g	100g	100g
100g	100g	100g	100g
100g	100g	100g	100g
100g	100g	100g	100g

3. Write the number names for each of the numbers.

Out Shopping

1. Write the number names for each of the numbers.



2. Write the number names for each of the numbers.

Kilogram	Grams
100g	100g
100g	100g
100g	100g
100g	100g
100g	100g
100g	100g
100g	100g
100g	100g



Who is Correct?



Two friends meet one another whilst out shopping.

They both have their babies with them. Both of them think they have the heavier baby. Who is correct? Explain how you know.

My baby was 450g when she was born. She is now 500g heavier. I have the heavier baby.

Sheena

My baby was 0.65kg. When he was born. He has gained 400g. My baby is heavier than Sheena's baby.

Salina



Answer:

Salina is correct.
Sheena's baby is $450\text{g} + 500\text{g} = 950\text{g}$
Salina's baby is $650\text{g} + 400\text{g} = 1050\text{g}$




Who is Correct?




Two sweet sellers have some sweets.

Who is correct? Explain how you know.



I have a 8000g bag of sweets. I have already sold 375g. I have the greater mass of sweets left.

Tina



I have two bags of sweets. Each bag weighs 3.75kg. I haven't sold any sweets yet. I have the greater mass of sweets left.

Toby

Answer:

Tina is correct.
 $8000\text{g} - 375\text{g} = 7625\text{g}$
 $3.75 \times 2 = 7.5\text{kg} = 7500\text{g}$



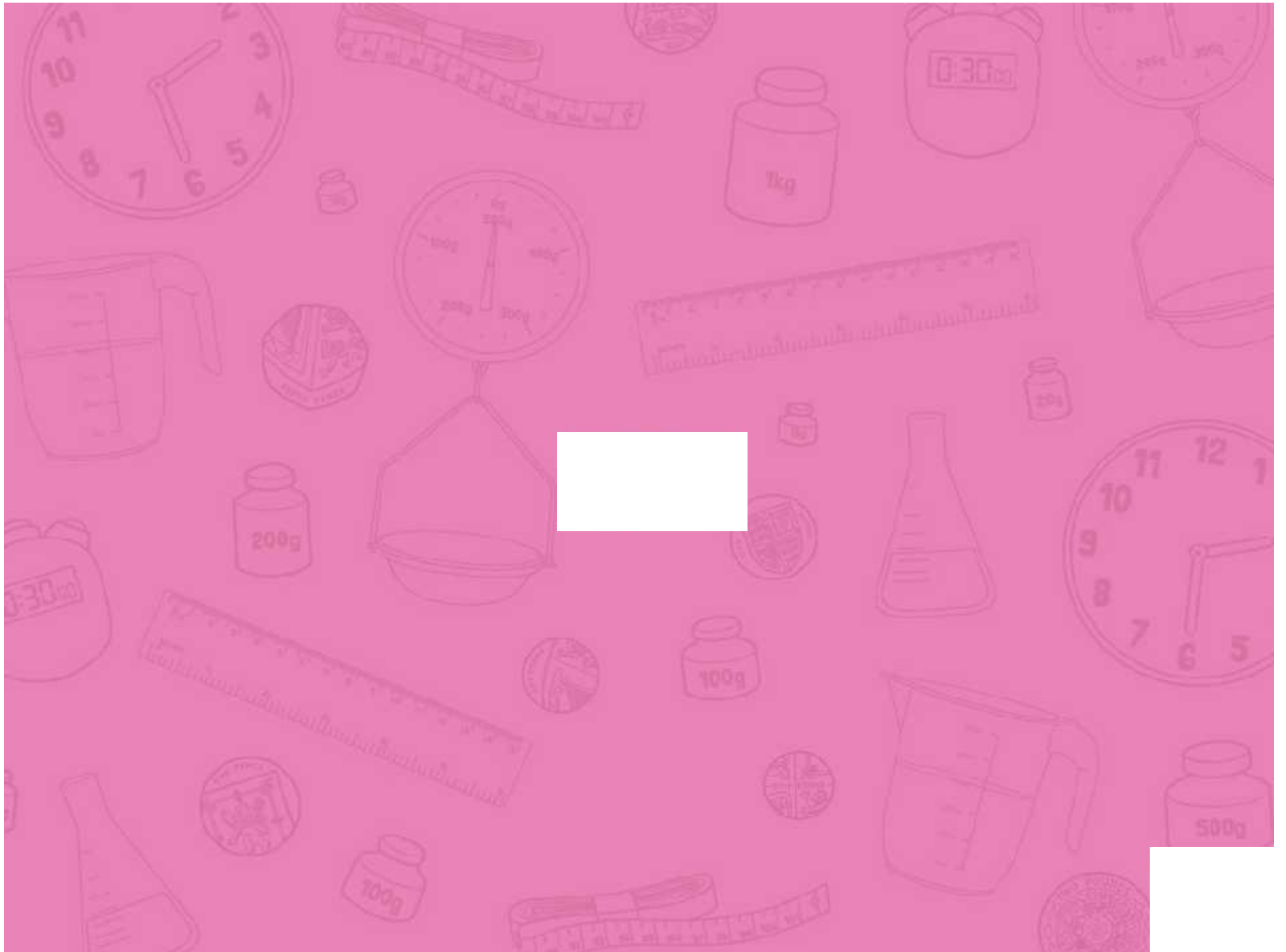
Aim



- I can read, write and convert between standard units of mass.

Success Criteria

- I can convert kilogram measurements with fractional quantities, to grams.
- I can convert units of mass by multiplying and dividing by one thousand.
- I can solve mass problems involving conversion between kilograms and grams.
- I can use up to three decimal places when reading, writing and converting units of mass.



Aim: I can read, write and convert between standard units of mass.				Date:					
				Delivered By:			Support:		
Success Criteria	Me	Friend	Teacher	T	PPA	S	I	AL	GP
I can convert kilogram measurements with fractional quantities, to grams.				Notes/Evidence					
I can convert units of mass by multiplying and dividing by one thousand.									
I can solve mass problems involving conversion between kilograms and grams.									
I can use up to three decimal places when reading, writing and converting units of mass.									
Next Steps									
) _____									
) _____									

T	Teacher	I	Independent
PPA	Planning, Preparation and Assessment	AL	Adult Led
S	Supply	GP	Guided Practice

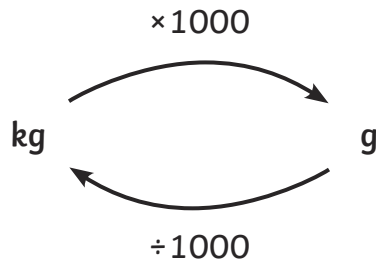
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Next Steps									
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T	Teacher	I	Independent
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Out Shopping

I can read, write and convert between standard units of mass.



1. Convert these kilogram measurements to grams by multiplying by 1000.

8kg	2kg	6kg	8.422kg	9.263kg	2.835kg
$\times 1000$	$\times 1000$	$\times 1000$	$\times 1000$	$\times 1000$	$\times 1000$
8000g			8422g		

2. Theo has been converting from grams to kilograms. If he is correct, mark the conversion with a tick. If he is wrong, mark it with a cross.

2500g	8100g	9500g	8654g	9342g	1899g
2.5kg	8.1kg	95kg	8.654kg	0.9342kg	1.899kg

3. Here are the mass of some items in a shop. Order this set of mixed measurements from smallest to greatest mass.

2.754kg 0.271kg 3275g 2.573kg 725g



4. Who is carrying the heavier bag? Show how you worked out the answer.



1.655kg potatoes
2 tins each
weighing 500g
A carton of juice
weighing 1100g



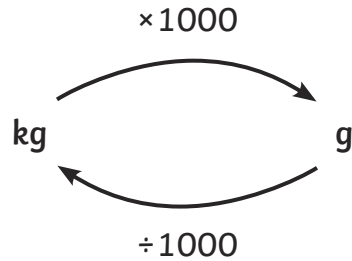
2500g fruit
1 bottle washing up
liquid 250g
A box of washing
powder weighing 1.5kg

5. Write a word problem, with a shopping theme, involving two measurements: one written in grams, the other in kilograms. Write an answer for the problem.



Out Shopping

I can read, write and convert between standard units of mass.



1. Match the measurements on the left with the conversion on the right. There is one pair which does not match.

6700g

2.555kg

1.07kg

2350g

23.5kg

1550g

4489g

1050g

4.489kg

1.05kg

6.7kg

1.5kg

1070g

23 500g

2.35kg

2555g

Write a conversion for both of the unmatched measurements.



2. a) Which of these measurements comes between 955g and 1.1kg?

955g		1.1kg
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1200g
0.91kg
1.05kg

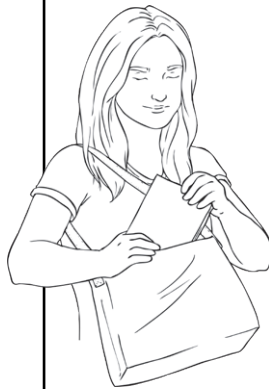
b) Which of these measurements comes between 6.75kg and 1.33kg?

6.75kg		1.33kg
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1.4kg
875g
6800g

3. This is Lucinda's shopping. Her bag can only carry 5.5kg. Can Lucinda put all of her shopping in her bag? Show how you worked out the answer.

Apples 1.25kg
2 bottles washing up liquid each 0.45kg
Box of cat food 2750g
5 cans of beans, each 245g



How much greater or less than 5.5kg is the bag's total mass? Write your answer in kilograms, using decimal notation.

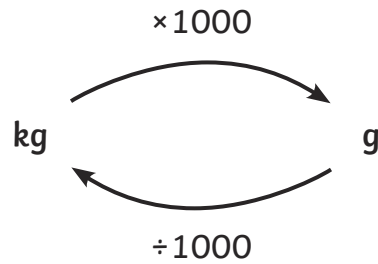
4. Write a word problem, with a shopping theme, involving two measurements: one written in grams, the other in kilograms. The problem needs to include subtraction. Write the answer to the problem.

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Out Shopping

I can read, write and convert between standard units of mass.

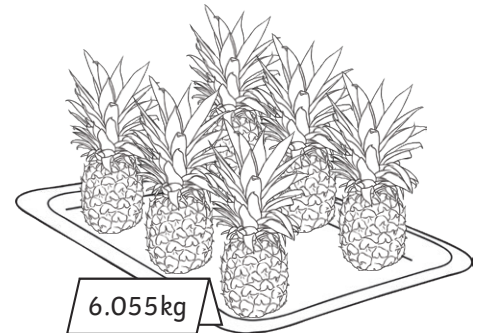
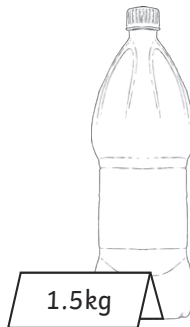
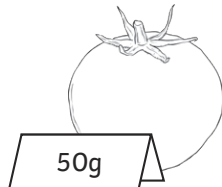
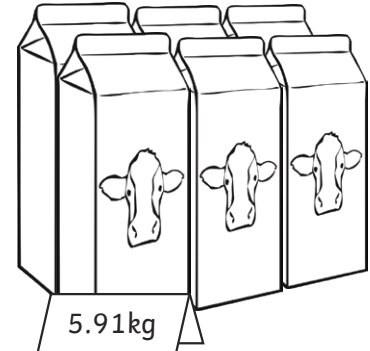
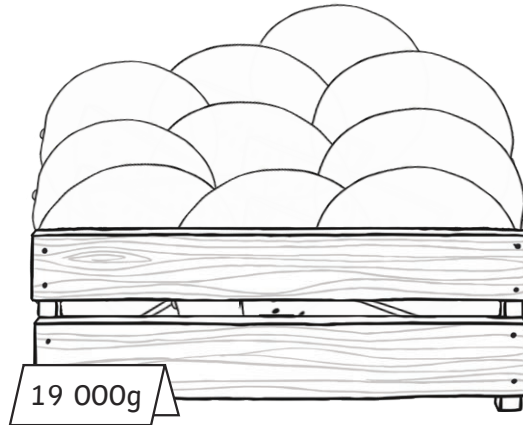
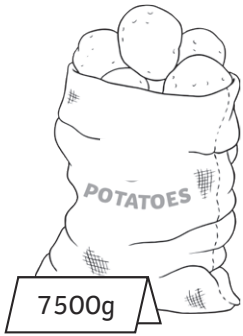


1. Fill in the missing measurements, converting between kilograms and grams.

Kilograms	Grams
1.54kg	
	2400g
	24g
0.05kg	
	10 850g
1.349kg	
2.009kg	
	772g
7.3kg	
	3560g
	2g
1.09kg	



2. Choose one of the masses to fit between each pair of measurements.



10.65kg		20 000g
50g		1kg
6.1kg		6kg
1000g		2000g
5900g		6kg
7.33kg		8500g
0.1kg		20g



3. This is Muhammed's shopping. His bag can only carry 5.5kg. How much more can he put in the bag? Write your answer in grams and in kilograms, using decimals. Show how you worked out the answer.



Oranges 957g
2 bottles, each 0.155kg
3 cans dog food, each 585g
Can of vegetables, 0.6kg

4. Write a word problem, with a shopping theme, involving two measurements: one written in grams, the other in kilograms. The problem needs to include a multiplication calculation. Write the answer to the problem.



Out Shopping Answers

1. Convert these kilogram measurements to grams by multiplying by 1000.

8kg	2kg	6kg	8.422kg	9.263kg	2.835kg
× 1000	× 1000	× 1000	× 1000	× 1000	× 1000
8000g	2000g	6000g	8422g	9263g	2835g

2. Theo has been converting from grams to kilograms. If he is correct, mark the conversion with a tick. If he is wrong, mark it with a cross.

2500g	8100g	9500g	8654g	9342g	1899g
2.5kg	8.1kg	95kg	8.654kg	0.9342kg	1.899kg
✓	✓	×	✓	×	✓

3. Here are the mass of some items in a shop. Order this set of mixed measurements from smallest to greatest mass.

0.271kg 725g 2.573kg 2.754kg 3275g

4. Who is carrying the heavier bag? Show how you worked out the answer.

Tim's bag has a mass of 3755g or 3.755kg.

Harvinder's bag has a mass of 4250g or 4.25kg.

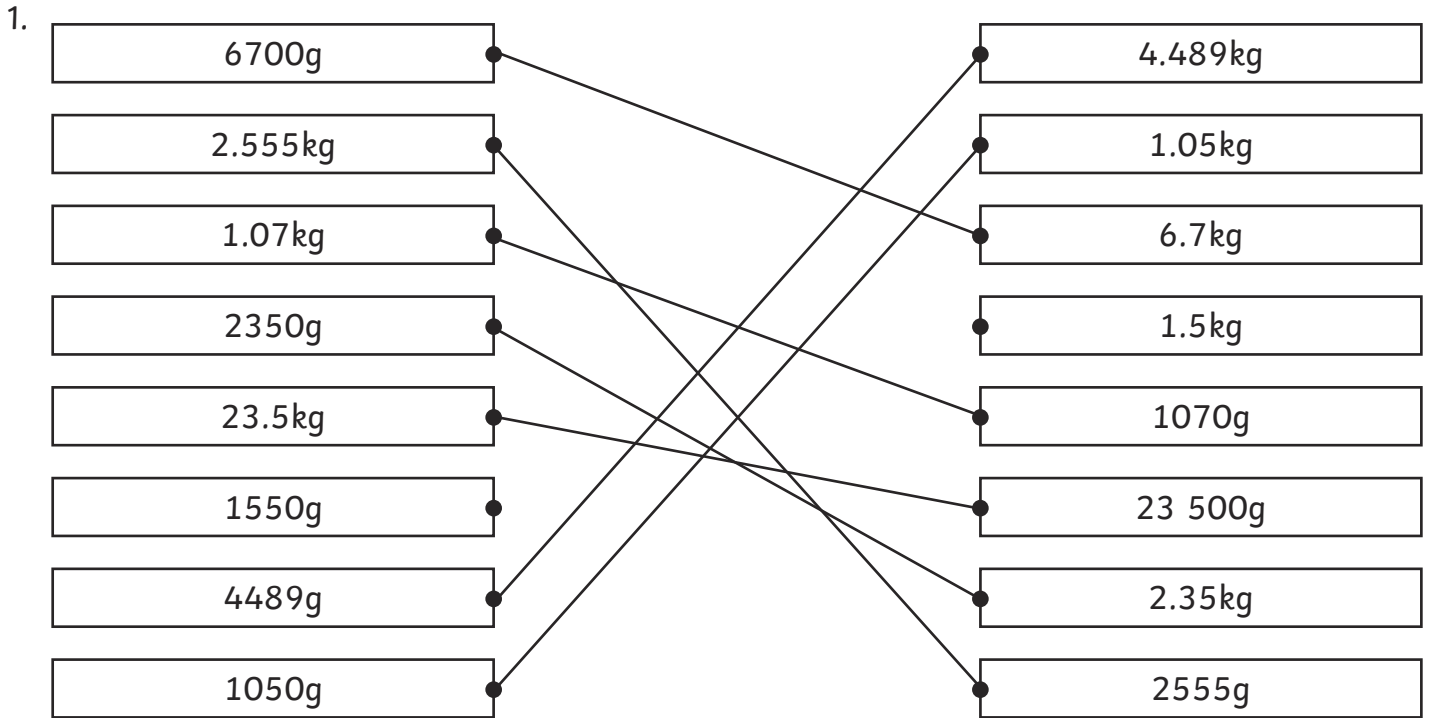
Harvinder's bag is the heavier.

5. Write a word problem, with a shopping theme, involving two measurements: one written in grams, the other in kilograms. Write an answer for the problem.

Multiple possible answers. Ensure the answer matches the problem.



Out Shopping Answers



Write a conversion for both of the unmatched measurements.

$1550g = 1.55kg$ $1.5kg = 1500g$

2. a) Which of these measurements comes between 955g and 1.1kg?

955g	<i>1.05kg</i>	1.1kg
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b) Which of these measurements comes between 6.75kg and 1.33kg?

6.75kg	<i>1.4kg</i>	1.33kg
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3. This is Lucinda's shopping. Her bag can only carry 5.5kg. Can Lucinda put all of her shopping in her bag? Show how you worked out the answer.

No, Lucinda's shopping has a mass of 6.125kg or 6125g. This is 0.625kg greater than 5.5kg.

4. Write a word problem, with a shopping theme, involving two measurements: one written in grams, the other in kilograms. The problem needs to include subtraction. Write the answer to the problem.

Multiple possible answers. Ensure the answer matches the problem.



Out Shopping Answers

1. Fill in the missing measurements, converting between kilograms and grams.

Kilograms	Grams
1.54kg	1540g
2.4kg	2400g
0.024kg	24g
0.05kg	50g
10.85kg	10 850g
1.349kg	1349g
2.009kg	2009g
0.722kg	722g
7.3kg	7300g
3.56kg	3560g
0.002kg	2g
1.09kg	1090g

2. Choose one of the masses to fit between each pair of measurements.

10.65kg	19 000g	20 000g
50g	850g	1kg
6.1kg	6.055kg	6kg
1000g	1.5kg	2000g
5900g	5.91kg	6kg
7.33kg	7500g	8500g
0.1kg	50g	20g

3. This is Muhammed's shopping. His bag can only carry 5.5kg. How much more can he put in the bag? Write your answer in grams and in kilograms, using decimals. Show how you worked out the answer.

Another 1.878kg or 1878g can be put into the bag.

4. Write a word problem, with a shopping theme, involving two measurements: one written in grams, the other in kilograms. The problem needs to include a multiplication calculation. Write the answer to the problem.

Multiple possible answers. Ensure the answer matches the problem.

Converting Units of Mass

I can read, write and convert between standard units of mass.



You already know that $1\text{kg} = 1000\text{g}$. Have you heard of the metric tonne? A metric tonne is equal to 1000kg . We use t for an abbreviation.

$1\text{kg} = 1000\text{g}$	$1\text{t} = 1000\text{kg}$	$1\text{t} = 1000 \times 1000 = 1\,000\,000\text{g}$
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Convert these measurements:

	Answer
$8\text{t} =$	kg
$3.5\text{t} =$	kg
$2.45\text{t} =$	kg
$3.999\text{t} =$	kg
$5500\text{kg} =$	t
$8450\text{kg} =$	t
$4115\text{kg} =$	t
$657\text{kg} =$	t
$5\,000\,000\text{g} =$	t
$2.5\text{t} =$	g
$3.85\text{t} =$	g
$1\,250\,000\text{g} =$	t
$3\,455\,600\text{g} =$	t
$435\,500\text{g} =$	t

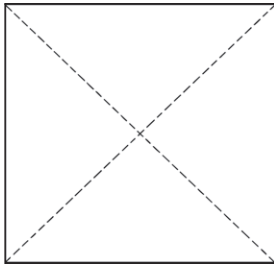
Converting Units of Mass Answers

	Answer
8t =	8000kg
3.5t =	3500kg
2.45t =	2450kg
3.999t =	3999kg
5500kg =	5.5t
8450kg =	8.45t
4115kg =	4.115t
657kg =	0.675t
5 000 000g =	5t
2.5t =	2 500 000g
3.85t =	3 850 000g
1 250 000g =	1.25t
3 455 600g =	3.4556t
435 500g =	0.4355t

Converting Measurement Units Fortune Teller

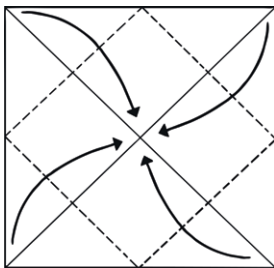
Instructions

①



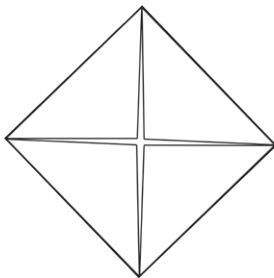
With pictures face down, fold on both diagonal lines. Unfold.

②



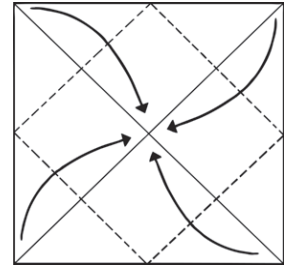
Fold all four corners to the centre.

③



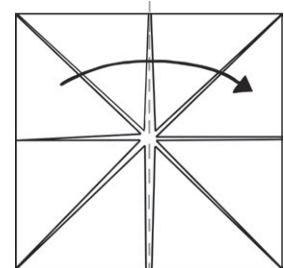
Turn paper over.

④



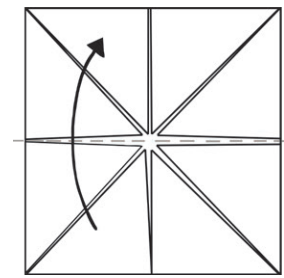
Once again, fold all corners to the centre.

⑤



Fold paper in half and unfold.

⑥



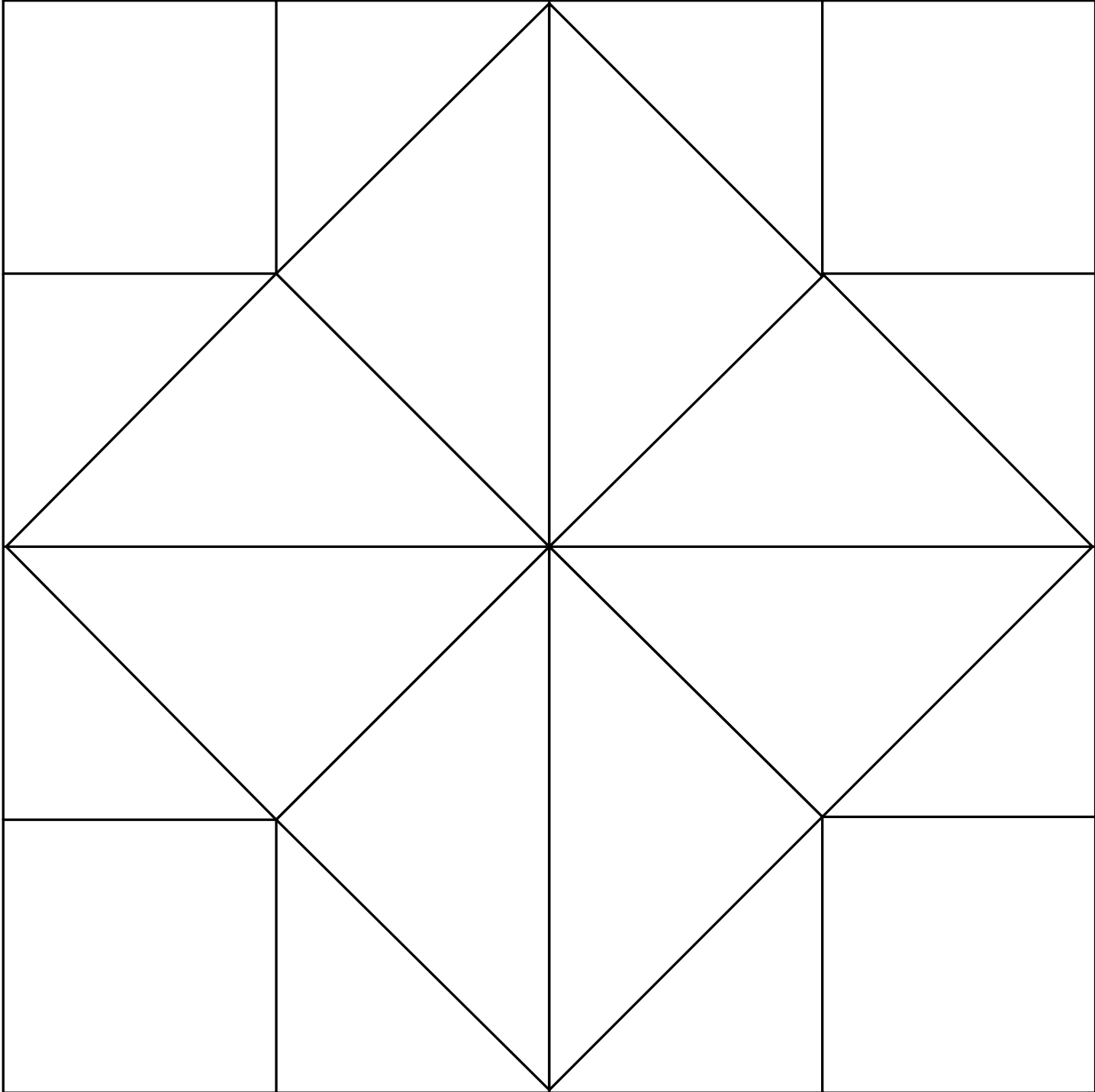
Fold in half from top to bottom. Do not unfold.

⑦



Slide thumbs and forefingers under the squares and move the fortune teller back and forth to play.

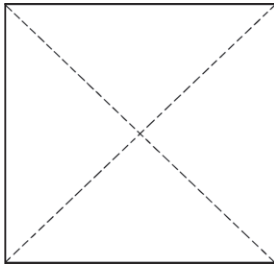
<p>length</p>	<p>$2450\text{m} = ?\text{km}$</p>	<p>$4\text{kg} = ?\text{g}$</p>	<p>mass</p>
<p>$1.85\text{km} = ?\text{m}$</p>	<p>2.45km</p>	<p>4000g</p>	<p>$2500\text{g} = ?\text{kg}$</p>
<p>1850m</p>	<p>2.5kg</p>	<p>6700ml</p>	<p>$6.7\text{l} = ?\text{ml}$</p>
<p>time</p>	<p>205 seconds</p> <p>$3\text{ minutes} = ?\text{ seconds}$</p>	<p>2.245l</p> <p>$2245\text{ml} = ?\text{l}$</p>	<p>volume</p>
<p>$2\text{ minutes and } 5\text{ seconds}$</p>	<p>$125\text{ seconds and } 7\text{ seconds}$</p>	<p>$= ?\text{ minutes and } ?\text{ seconds}$</p>	<p>$= ?\text{ minutes and } ?\text{ seconds}$</p>



Converting Measurement Units Fortune Teller

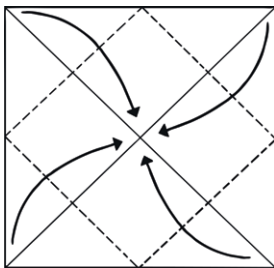
Instructions

①



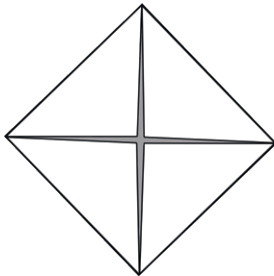
With pictures face down, fold on both diagonal lines. Unfold.

②



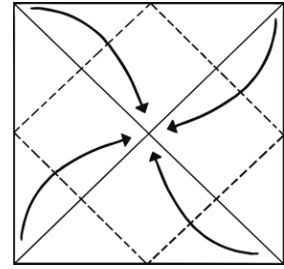
Fold all four corners to the centre.

③



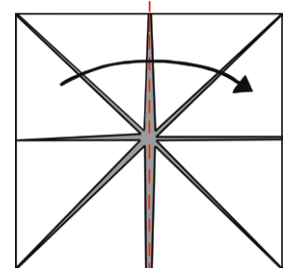
Turn paper over.

④



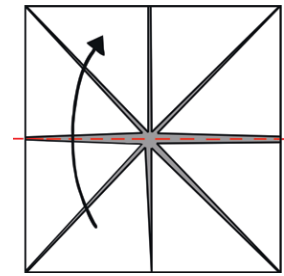
Once again, fold all corners to the centre.

⑤



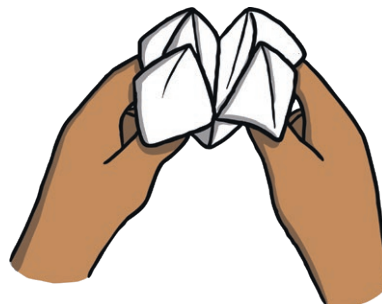
Fold paper in half and unfold.

⑥

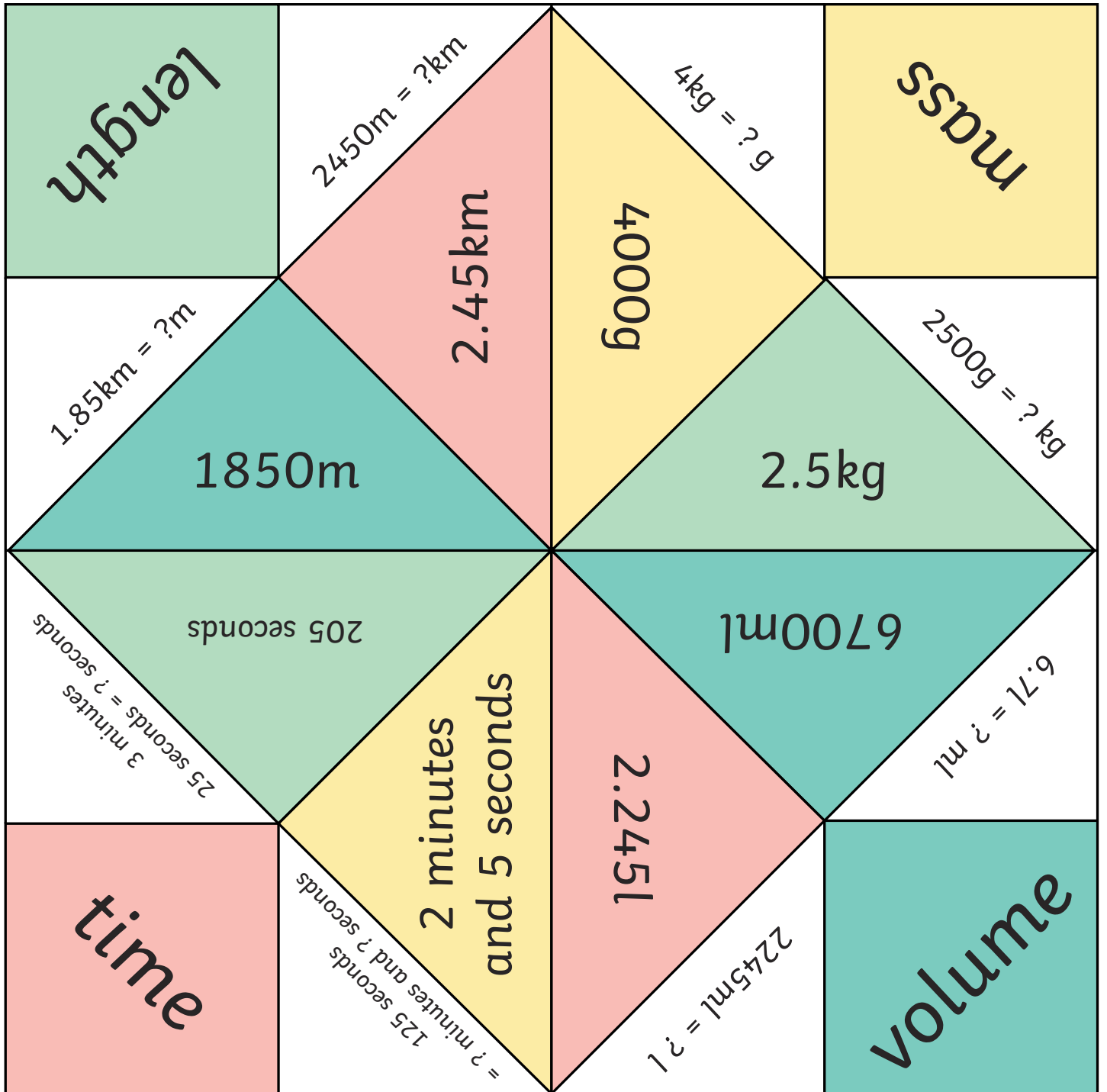


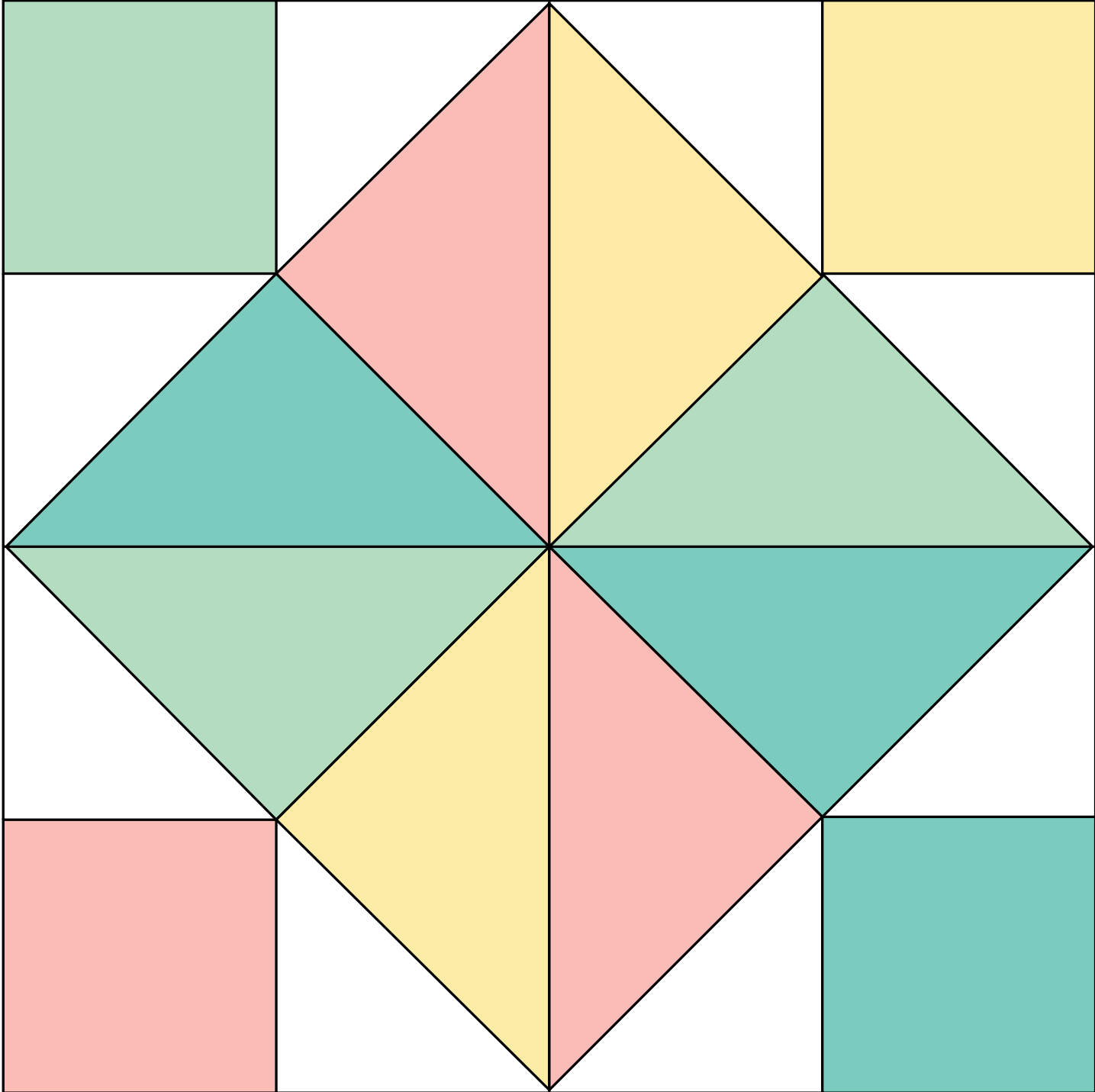
Fold in half from top to bottom. Do not unfold.

⑦



Slide thumbs and forefingers under the squares and move the fortune teller back and forth to play.





Measurement | Out Shopping

I can read, write and convert between standard units of mass.		
I can convert kilogram measurements with fractional quantities, to grams.		
I can convert units of mass by multiplying and dividing by one thousand.		
I can solve mass problems involving conversion between kilograms and grams.		
I can use up to three decimal places when reading, writing and converting units of mass.		

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