BLOOMSM4TH
Makes Maths Fun

Level 7
MASS

Bloomsmath is a comprehensive mathematics program which provides a fun way for every student to be learning to the best of their ability.

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Level 7

Mass

Level 7 is designed for students in their seventh year at school often called Year 6. Students will select and use the appropriate unit measuring device to find the mass of objects.

Knowledge: Students will order various animals from lightest to heaviest.

Students who demonstrate proficiency in this activity move on to Comprehension.

STOP Students stop here as they require additional teacher support to master this activity.

Comprehension: Students will attempt to heft weights from 0.5kg up to 5kg and suggest how each could be weighed.

Students who demonstrate proficiency in this activity move on to Application.

STOP Students stop here if time has run out or they require additional support with this activity.

Application: Students will calculate with weights to solve "Fisherman Dan's Trophy".

Students who demonstrate proficiency in this activity move on to Analysis.

STOP Students stop here if time has run out or they require additional support with this activity.

Analysis: Students will suggest how each weight from 0.5kg to 10kg could be measured.

Students who demonstrate proficiency in this activity move on to Synthesis.

STOP Students stop here if time has run out or they require additional support with this activity.

Synthesis: Students will create a table this time for a 40 kilogram weight.

Evaluation: Suggested questions provide a starting point for discussions related to Mass.

Students may complete more or fewer activities for each learning outcome depending on the time allocated and their strength in the area being covered.

All students should participate in the Evaluation discussion to encourage the use of mathematical language, logical reasoning and reflection on that which they have completed.

Name: _____

Knowledge

Predict the weight order of each of these animals from heaviest to lightest.

Animal	Ant	Butterfly	Goldfish	Small dog – ie. terrier, maltese	Cow	Horse	Giraffe	Elephant	Dolphin	Blue Whale
Order										
Predicted Weight										

Using the internet find the average weight of each of these animals in grams, kilograms and tonnes.

Animal	Grams	Kilograms	Tonne

Let's Try This Again   Progress To Comprehension

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Name: _____

Comprehension Part 1

Collect a set of 10 classroom objects such as a pencil, sharpener, textbook, chair, table etc. Order these items from heaviest to lightest.

Item										
Order										
Predicted Weight										

Sort these items into the method that could be used to weigh them ie. kitchen scales, bathroom scales or industrial scales.

Kitchen Scales:

Bathroom Scales:

Let's Try This Again

Progress To Application

Mass - Level 7 - Students will find the mass of various objects.

Knowledge

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Name: _____

Comprehension Part 2

Industrial Scales:

Weigh the items that can be weighed using Kitchen and Bathroom scales and see how far out you were in your weight estimations.

Item	Estimated Weight	Actual Weight	Difference

Mass - Level 7 - Students will find the mass of various objects.

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Let's Try This Again   Progress To Application

Name: _____

Application

See if you can solve the Fisherman Dan riddle below.

Fisherman Dan used to weigh all the fish he caught using a 10 kilogram fishing trophy he had received many years ago. One day, however, while he was out at sea Fisherman Dan got caught in a storm and his precious trophy was smashed against the floor of his boat and broke into 4 pieces.

Fisherman Dan discovered that he was actually better off with his trophy in four pieces because now he could weigh his fish individually. He could now accurately weigh anything from 50 grams to 10 kilograms. In the space below show 6 combinations that his trophy might have broken into ie. 0.5kg, 1kg, 2.5kg and 6kg?

Use the space below to show your working.

Mass - Level 7 - Students will find the mass of various objects.

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Name: _____

Analysis

For each image below show how Dan could measure anything from 0.5kg to 10kg in weight. For some of these he would need to add a weight to his catch to make the scales balance.
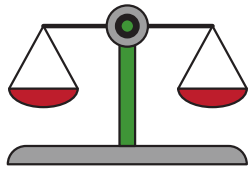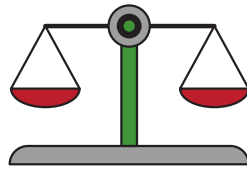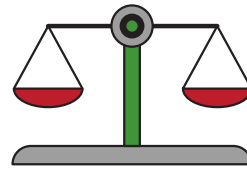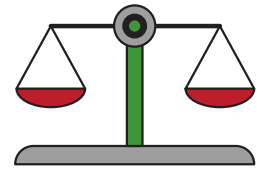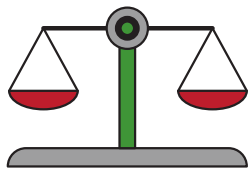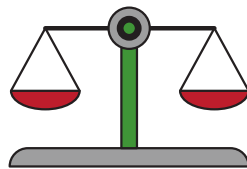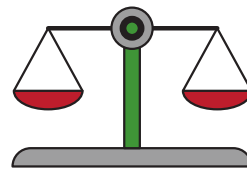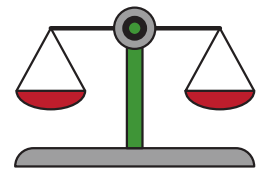
0.5kg   1kg   1.5kg   2kg

2.5kg   3kg   3.5kg   4kg
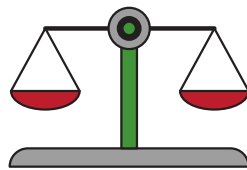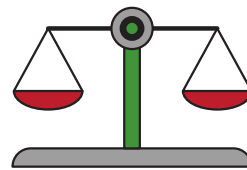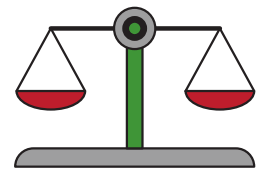
4.5kg   5kg   5.5kg   6kg
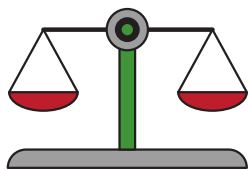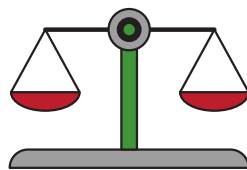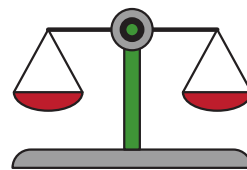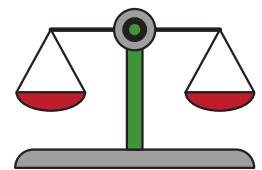
6.5kg   7kg   7.5kg   8kg
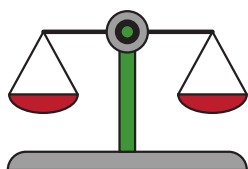
8.5kg   9kg   9.5kg   10kg
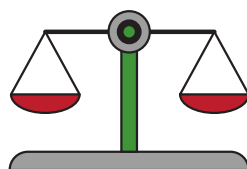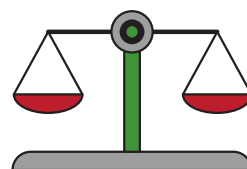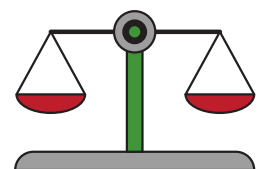
Let's Try This Again   Progress To Synthesis

MS 7 AN

Mass - Level 7 - Students will find the mass of various objects.

Knowledge
Comprehension
Application
Analysis
Synthesis
Evaluation

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Name: _____

Synthesis

As a rule of thumb when fishing it is possible to calculate a fishes rough weight as (Length (in inches) x Girth x Girth) / 800.

For example a fish 20 inches long and 10 inches around the middle (girth) would weigh 2.5 pounds which is just over 1kg.

		GIRTH(inches)								
		__10	__12	__13	__14	__15	__16	__17	__18	__20
Length (inches)	14	1.75	2.52	2.96						
	15	1.88	2.70	3.17						
	16	2.00	2.88	3.38	3.92	4.50				
	17	2.13	3.06	3.59	4.17	4.78				
	18	2.25	3.24	3.80	4.41	5.06	5.76	6.50		
	19	2.38	3.42	4.01	4.66	5.34	6.08	6.88		
	20	2.50	3.60	4.23	4.90	5.63	6.40	7.23		
	21	2.63	3.78	4.44	5.15	5.91	6.72	7.59		
	22		3.96	4.65	5.39	6.19	7.04	7.95	8.91	
	23		4.14	4.66	5.64	6.47	7.36	8.31	9.32	11.50
	24			5.07	5.88	6.75	7.68	8.67	9.72	12.00
	25			5.28	6.13	7.03	8.00	9.03	10.13	12.50
	26			5.49	6.37	7.31	8.32	9.39	10.53	13.00
	27				6.62	7.59	8.64	9.75	10.94	13.50
	28					7.88	8.96	10.12	11.34	14.00
	29					8.16	9.28	10.48	11.75	14.50
	30					8.44	9.60	10.84	12.15	15.00

Use the table above and a calculator to find the weight in kgs of each of these fish. *(Note: Pounds x 0.45 = Kgs)*.

Length	Girth	Pounds	Kilo
14	13		
16	10		
18	15		
20	17		
22	12		
24	20		
26	14		
28	16		

Let's Try This Again

Progress To Evaluation

Mass - Level 7 - Students will find the mass of various objects.

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Evaluation

Mass - Level 7 - Students will find the mass of various objects.

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The following questions and activities are provide as a starting point for fun discussions related to Mass. During these conversations students will have an opportunity to use appropriate mathematical language in its correct context, to engage in reflection on the Mass activities they have completed and to use logical reasoning to tie their in-class mathematics to its everyday context.

Look at different measuring devices such as car scales or fishing scales.

Make an equal arm balance using plastic containers, a coat hanger and string.

Use the scales and various weights to measure unknown weights like Fisherman Dan did.

Discuss the various results students got for the broken pieces – why are there so many answers.

Did students have different answers for the weights from 0.5 to 10kg. Were they able to make most of the measurements but failed on 1 or 2?

How did they work out which amounts were the best to use – algebra, trial and error, guess and check?

Fisherman Dan Answers: 0.5kg; 1.5kg. 3.5kg and 4.5kg

Weight	Fish Weigth	Fish (+Weight if needed)	Weight	Scale	Fish (+Weight if needed)
0.5	0.5	Fish	1.5kg + 3.5kg + 0.5kg	5.5	Fish
1.5kg	1.0	Fish + 0.5kg	4.5kg + 1.5kg	6	Fish
1.5	1.5	Fish	0.5kg + 1.5kg + 4.5kg	6.5	Fish
0.5 + 1.5	2.0	Fish	0.5 + 3.5kg + 4.5kg	7	Fish + 1.5kg
4.5kg	2.5	Fish + 1.5kg + 0.5	3.5 kg + 4.5kg	7.5	Fish + 0.5kg
3.5kg	3	Fish + 0.5	3.5kg + 4.5kg	8	Fish
3.5kg	3.5	Fish	0.5kg + 3.5kg + 4.5kg	8.5	
4.5kg	4	Fish +0.5	1.5kg + 3.5kg + 4.5kg	9	Fish + 0.5kg
4.5kg	4.5	Fish	1.5kg + 3.5kg + 4.5kg	9.5	Fish
1.5kg + 3.5kg	5	Fish	0.5kg + 1.5kg + 3.5kg + 4.5kg	10	Fish