

Monday 14th April – Friday 18th April

Maths New Learning

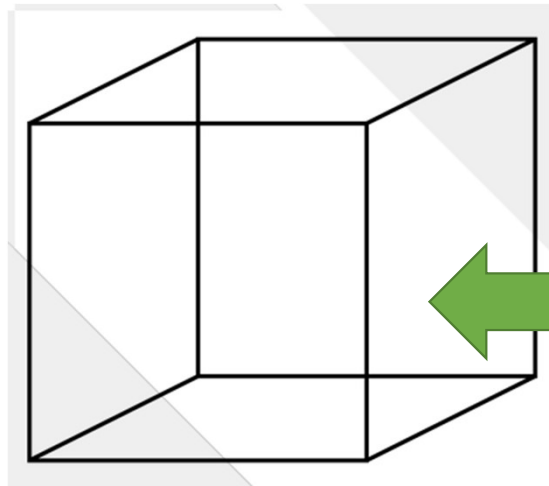
On Diagnostic Questions, you will have two quizzes: one will be a review, and one will be new learning. The following slides are a guide to help you with the new learning.

Monday 14th is Easter Monday; Tuesday 15th is a Non-Pupil Day.

Wednesday 15th: Volume

What is volume?

- It has lots of different meanings e.g turn up the volume,
- What about the volume of a shape?

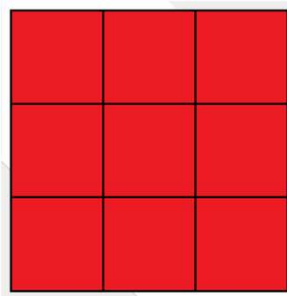


Volume = the space a 3D shape takes up.



- If the formula for the area of a rectilinear shape is length x width

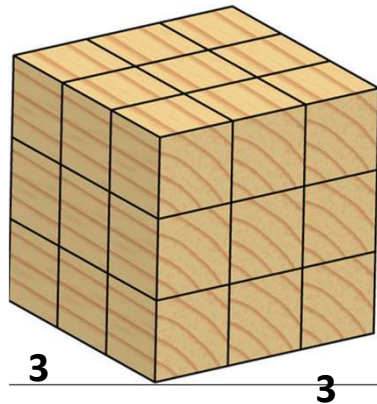
$$3 \times 3 = 9$$



3

3

- What could be the formula to find the volume of a shape?



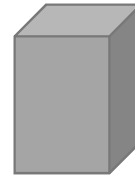
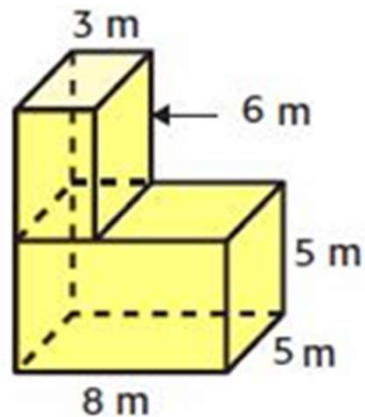
3

3

3

Volume = length x width x height

What about this composite shape? How could you work out the volume?



$$3 \times 6 \times ?$$

$$3 \times 6 \times 5 = 90\text{m}^3$$



$$8 \times 5 \times 5 = 200\text{m}^3$$

$$90\text{ m}^3 + 200\text{m}^3 = 290\text{m}^3$$

Thursday 16th / Friday 17th: Using simple formula

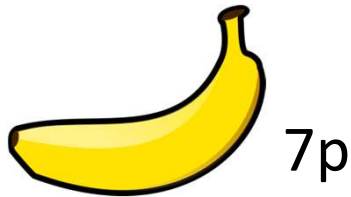
Algebra

- This is algebra: $l \times w = \text{area}$ It is the formula to find an area of a rectangle.
- So is this: $\times 5 = 15$

Vocabulary

- An algebraic **expression** has no equals sign e.g.
 - $a + b$
- An **equation** has a equals sign. E.g
 - $a + b = 5$
- A **formula** is an equation that gives us instructions on how to do something.
- E.g. to find the area of a triangle: $area = (b \times h) \div 2$
- *Equations and formula can sometimes be used interchangeably.*

Writing algebraic equations



You want to buy 3 bananas.
You can use algebra to
express how you are going to
work out the cost.

3 x bananas can become ...

3 x b , which can become

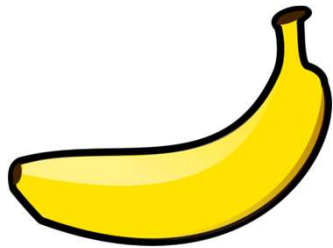
3b

$$3b = 3 \times 7p$$

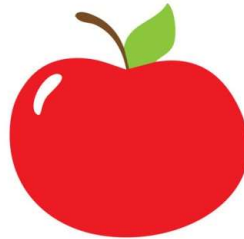
$$3 \times 7p = 21p$$

In algebra there is no
need for a x symbol
– just the letter next
to the number tells
us it is a
multiplication.

Writing algebraic equations



5p



9p

Now you would like 4 bananas and 5 apples. Can you express this algebraically ?

4 x bananas + 5 x apples

$4b + 5a$

$20p + 45p = 65p$

What happens when we don't know all the values?

- How many sweets are in this bag??

► We don't know!



► We have to call it 'n' for aNy number!

SOLVING EQUATIONS

- Solving **equations** allows us to calculate the number of sweets in each bag!



$$+ 3 = 5$$

?

$$+ 3 = 5$$



$$+ 3 = 5$$

X

$$+ 3 = 5$$

It can be any letter
e.g. b for banana or
n of aNy number. Or
it can be just an
empty box or
question mark. In
algebra you just use
letters to represent
numbers or
variables.



11	
n	5

Use the inverse.
 $11 - 5 = 6$

$$n + 5 = 11$$

To solve the equation, use the inverse operation.



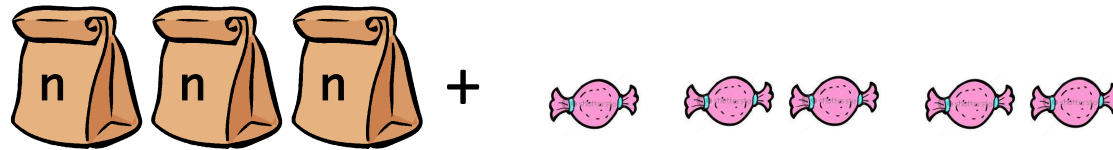
10	
n	n



Use the inverse.
 $10 \div 2 = 5$

$$2n = 10$$

To solve the equation, use the inverse operation.



17			
n	n	n	5

Now there are two operations. What are we going to do?

Use the inverse.

$$17 - 5 = 12$$

$$12 \div 3 = 4$$

$$3n + 5 = 17$$

To solve the equation, use the inverse operation.



23				
n	n	n	n	3

$$4n + 3 = 23$$

Use the inverse.

$$23 - 3 = 20$$

$$20 \div 4 = 5$$

To solve the equation, use the inverse operation.