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Educational Consultants

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umeracy

**Final Preparation Lesson
Yr 5**

- Skills Examined
- Practice Questions

Resource code: 27052511

NAPLAN Test Format



2014 Test timetable

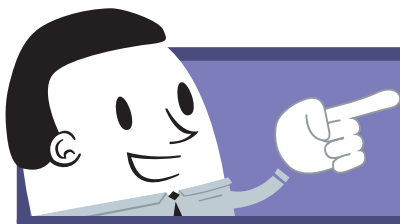
Monday 12 May	Tuesday 13 May Official test date	Wednesday 14 May Official test	Thursday 15 May Official test	Friday 16 May Official test
	1. Language conventions Yr 5: 40 min	3. Reading Yr 5: 40 min	4. Numeracy Yr 5: 40 min	5. Writing Yr 5: 40 min
			10 minute break	
		<i>Catch up tests permitted</i>	<i>Catch up tests permitted</i>	<i>Catch up tests permitted</i>
		Wednesday 21 May	Thursday 22 May	Friday 23 May



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to ensure tests remain secure for schools granted approval to vary test

up tests not permitted.



National Curriculum Alignment

NUMERACY

Years 4 and 5



What are the three content strands for mathematics?

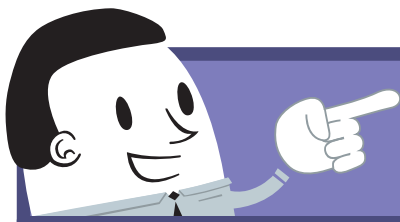
1. Number and Algebra
2. Measurement and Geometry
3. Statistics and Probability

By the end of end of Year 4, students should be able to:

- Recognise common equivalent fractions in familiar contexts and convert between fraction and decimal notations up to two decimal places.
- Choose appropriate strategies for calculation.
- Solve basic purchasing problems.
- Identify unknown quantities in number problems.
- Compare areas of regular and irregular shapes.
- Describe number patterns resulting from simple operations.
- Solve problems involving time duration.
- Interpret information found in line graphs.
- Identify dependent and independent variables.
- Describe different methods of data collection and evaluate their effectiveness.
- Use the properties of operations to solve problems.
- Recall multiplication facts for multiplication of one digit numbers.
- Locate familiar fractions on a number line.
- Continue number patterns involving multiplication and division of one digit numbers.
- Use scaled instruments to measure length, mass, volume, temperature, angles, shapes and objects.
- Convert between units of measurement.
- Create symbols for data collection.
- Classify and represent data.
- List the characteristics of data.
- Construct simple bar graphs and data.



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National Curriculum Alignment

NUMERACY

Year 5



What are the three content strands for mathematics?

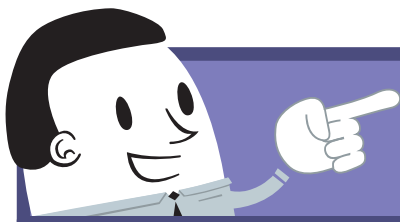
1. Number and Algebra
2. Measurement and Geometry
3. Statistics and Probability

By the end of end of Year 5, students should be able to:

- Solve simple problems involving the four operations, and estimate mentally and check the reasonableness of answers using number facts.
- Identify and describe factors and multiples.
- Explain plans for simple budgets.
- Connect three-dimensional objects with their nets and other two-dimensional representations.
- Describe transformations of two-dimensional shapes using translation, reflection and rotational symmetry.
- Compare and interpret different units of measurement.
- Order decimals and unit fractions.
- Add and subtract fractions with like denominators.
- Continue patterns by multiplying and dividing by 10 and 100.
- Find unknown quantities in simple linear problems involving multiplication and division.
- Use appropriate units to measure and estimate volume, capacity and mass, and calculate perimeter and area.
- Convert between units of measurement.
- Use a grid to draw simple shapes and rectangles.
- Measure and draw lines of different lengths.
- List outcomes of simple chance experiments, identify equally likely outcomes and assign probabilities between 0 and 1.
- Possess the ability to interpret and construct data displays appropriate for the data.



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Test Preparation

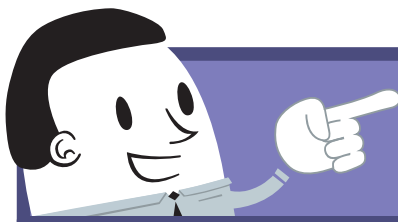


- Do you think that an athlete would stay up till dawn eating fast food? In much the same way, there is a lot you can do to prepare yourself to ensure that you are performing at your peak.
- Try to have as much sleep as possible the night before. Studies show that eyes are much sharper and more focused when they are well-rested.
- Pack the essentials you will need the night before the test. Do you need to write in pencil or pen? Will you need highlighters? A ruler? A protractor or compass? A dictionary?
- Don't eat anything strange or new the night before. Fried sausages don't agree with you the morning of an exam. Eat a healthy meal, preferably including some brain food like fish, nuts, and vegetables.
- Set an alarm!
- Don't dose up on sugar and caffeine. It may give you a temporary burst of energy, and you are likely to crash when you need to attempt the hardest question!
- Go to the bathroom in the morning. It's a good idea to have to dash out of the room in the middle of your exam. Avoid sitting with tightly crossed legs.
- Anxiety is contagious. If you feel nervous, remember that with impending doom and gloom, steer clear of them. Stay calm and focused on the questions you are asked.
- Listen to the instructions at the beginning of the exam. Ask a question if you need to clarify anything. Don't be left wondering.
- Don't rush. Read everything properly – too many students make silly mistakes by not reading a question or sentence.

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...time
 ...at the
 ...no time to
 ...yourself, and if
 ...put a star next to it
 ...the end.



Multiple Choice Tips



1. Read the question first!



2. Underline important points and mark

you understand questions and in



3. Read the possible answers.



4. Eliminate any obviously wrong

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any answers that make

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5. For literacy items

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mistake by missing something



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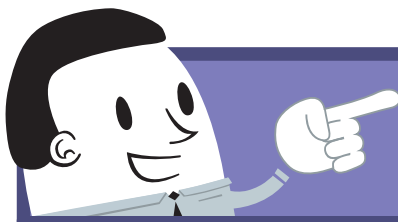
remember your working out does not have

neat or logical to anyone but you! Your

working out is not marked!



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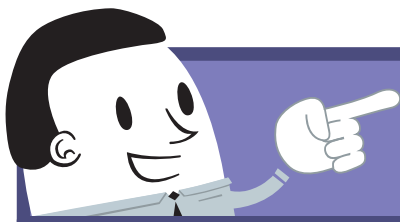
Multiple Choice Tips



- 9. You will often find that the last questions in the section are more difficult than the first. You may need to spend more time on the last questions.
- 10. If you can't work out the right answer, write a wrong answer in the answer space as you are sure you are wrong. Then place a mark next to it so if you have time at the end of the test you can come back to it and change your answer.
- 11. Don't spend all your time on one question. Use your time wisely and move on to the next question. If you have time left at the end of the test, you can go back to the questions you were unsure of.
- 12. You should always record answers in the space provided. Each item has only one correct answer. There is no penalty for a wrong answer, so it is always a good idea to make a guess even if you have no idea what the answer is. If you want to change your answer, use a rubber to remove the mark and then shade or write the new answer in the appropriate space provided. If you have time left over, go back and double check your answers!

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Numeracy Test

The Numeracy Test will quiz you on many different mathematical questions will generally be multiple choice, with some short answer questions. The test will test the skills you will be tested on to refresh your memory and check you can do everything!



! Tips

Number

- Read and understand the value of numbers from 1 - 1000
- Solve addition and subtraction problems involving numbers up to 1000 without a calculator, e.g. $4537 + 5584$
- Understand place value (thousands, hundreds, tens and units)
- Count in 1's, 2's, 5's, 10's and 25's
- Know all of your times tables from 1×1 up to 10×10
- Be able to do multiplication and division problems involving numbers with and without a calculator
- Understand, work with and be able to convert between fractions and percentages, e.g. $\frac{1}{2} = 50\%$ and $\frac{1}{4} = 25\%$
- Count by skipping numbers with a given interval

Money

- Add and subtract coins and notes
- Identify money and understand how to write it, e.g. writing that seven dollars and thirty cents looks like \$7.30

Time

- Be able to read a clock face to the nearest minute
- Calculate the duration of events, e.g. if morning tea goes from 10:00 to 10:30, it is 30 minutes long



- Understand measurement terms (remember: 10mm in a centimetre, 1000m in a kilometre.)
- Understand how to measure length by reading a thermometer
- Calculate the perimeter (the length of the outside edge) of 2D shapes

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1
2
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4
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+
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1
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3
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7
8
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-/



Numeracy Test

Geometry

- Solve puzzles and patterns that use shapes instead of numbers
- Know the properties of 2D and 3D shapes, i.e. their names, number of faces
- Be able to visualise what a shape would look like after it has rotated.
- Determine lines of symmetry on shapes
- Describe locations on a coordinate based grid square
- Compare different sizes of angles and know what

Algebra/Patterning

- Estimate, measure and compare different
- Work out the rule a number pattern is

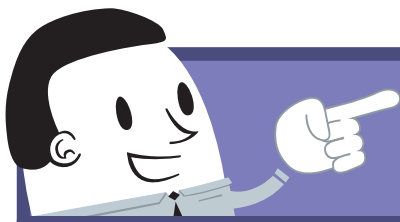
Probability

- Identify the chance of something happening from a set of bag filled with 10 blue marbles a
- Read and use graphs, Ven
- Conduct a variety of pr



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Test Tips

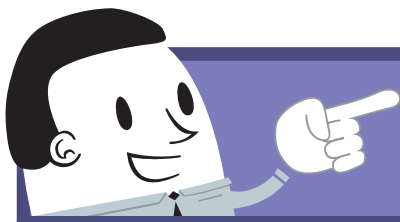
NUMERACY TEST



- Have I read through the problem properly?
- Have I written down my working out?
- Would drawing a diagram help?
- Have I used the correct units?
- Does my answer make sense? Is it a rough estimate?
- Have I attempted all the questions?
- If I've ended up stuck, have I checked or reattempted the questions?
- Can I use a technique like 'flow chart', "Table" or 'work backwards'?



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Skills Examined

The numeracy test will look at how good you are at solving problems. There will be about 40 questions, and you won't be allowed to use a calculator. All the work will need to be done in your head or by writing down your answers. Some questions will be written as a sum, such as $4 + 7 =$, but some will be written as word problems, and you will have to figure out and write down the answer yourself. Most will be multiple choice, but some items will be open-ended. Have a look at all the maths skills below and try to answer the different types of questions!



Number Questions

Odd and even numbers

Even numbers are numbers that can be divided by 2. They are any number that ends in 2, 4, 6, 8 or 0. Odd numbers are numbers that cannot be divided by 2. They are any number that ends in 1, 3, 5, 7 or 9.

Addition

Addition means adding numbers together. The result is known as their sum. To add one number to another, you can use a number line or a grid.

Sample equation: $4 + 7 = 11$
Sample word problem: I caught 4 ladybirds and 7 more. (The answer is 11)

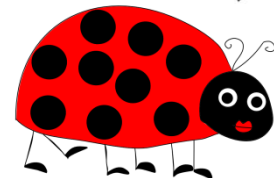
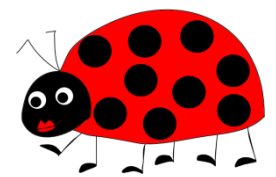
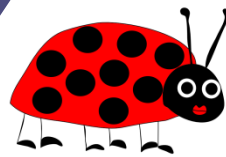
When you are adding two numbers, you need to add one column at a time. You even need to carry into the next column. For example, if I caught 16 ladybirds and wanted to know how many I had in total, I would need to know how to add 16 + 7.

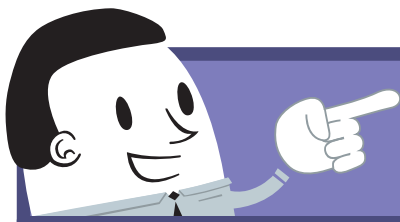
1 tens

2. Write down the sum and carry the 1 into the next column. Everything in the next column plus the 1 you just carried = 3.

Remember that when you write an addition, the order of the numbers always be the same. So $4 + 7 = 11$ and $7 + 4 = 11$.

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Skills Examined

Subtraction

Subtraction means taking a number away from another number. It is written using the minus symbol: -.

Sample equation: $7 + 4 = ?$

Sample word problem: What's the difference between 7 and 4?
(The answer is 3).

If you are doing a takeaway sum with a big number, you may have to borrow from the tens column. It is the opposite of the *carrying* you do when adding. For example, I had 53 Christmas cards to write in total but I had already written 9. How many I had left to do.

$$\begin{array}{r} 53 \\ - 9 \\ \hline \end{array}$$

You would solve this problem right to left. In the ones column, you can't do the sum $3 - 9$, so you therefore need to do is there are 5 tens, you borrow 1 ten from the tens column and add it to the ones column, making it into a 13 – something you can subtract 9 from. This means you need to write 4 in the ones column and 4 in the tens column, because you borrowed 1 from it by borrowing. The answer is 44. This is written like this:

$$\begin{array}{r} \text{tens} \\ \text{ones} \\ 4 \text{ } 13 \\ - 9 \\ \hline 44 \end{array}$$

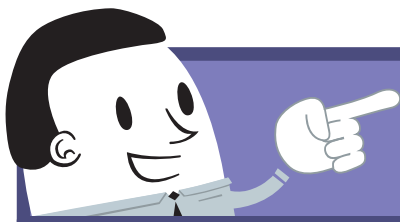


Notice how the 4 in the tens column is written that way. This means that in the tens column. This means $53 - 9 = 44$.



When you are doing a subtraction sum in the same order, because the answer is always the same. For example, $7 - 4$ is not the same as $4 - 7$!

When you are working out what a certain number of groups of something equals, you can write it using a times symbol: x. When you were younger, you might have written the answer by drawing three groups of five things - such as three pens



Skills Examined

of five piglets - and then counting them, but as you get older you are able to work them out in your head. By year five, you should know your times tables off by heart, including the trickier ones like

Sample equation: $2 \times 5 = ?$

Sample word problem: What is the product of 2 and 5?
(The answer is 10).

Also be aware that if you are asked to double something, you are just multiplying it by 2.

You also might need to *carry* when you are multiplying. For example, where mum wanted to buy four

	tens	
	ones	
2	55	
x 4	_____	
	220	

Firstly, you need to multiply 4 by the 5 in the ones column. $4 \times 5 = 20$. You now need to write down the 0 and carry the 2 over to the 5 in the tens column. $4 \times 5 = 20$. You now need to write down the 0 and carry the 2 over: $20 + 2 = 22$. Write down the 22 in the tens column. You have already written, and you will have your answer! 55 times 4 is 220.

Division

Division involves splitting something into equalized groups or equal parts. So if you are doing a division, you are trying to find out how many times a certain number goes into another number. For example, how many times does 2 go into 10. It is written using the division symbol: $10 \div 2 = ?$

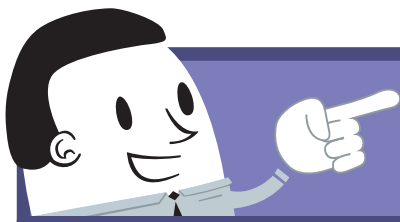
Sample equation: $10 \div 2 = ?$
Sample word problem: What is the product of 2 and 5?



Some division problems are hard to do in your head, so there is a special trick you can use. For example, where dad had 96 carrot seeds and wanted to divide them into 3 groups. Firstly, write the number you are dividing (96) and draw a vertical line to the right of it. Place the number you are dividing by (3) to the left.



SAMPLE



Skills Examined

Sometimes you may be asked to do maths sums with money and numbers. You need to be familiar with Australian coins and how to use them from each other. This will also help in real life too, as you need to know how much of your pocket money or any cash you might earn in a job.



Our lowest coin is 5c, then 10c, 20c, 50c and 1 dollar. Banknotes are \$5, \$10, \$20, \$50 and \$100. An amount is written with a dollar sign and cents, such as \$2.75.

Fractions

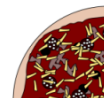
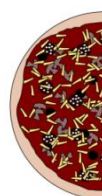
A fraction is a slice of something – like a slice of pizza. Numerically you write the size of the slice over the number of slices in the whole. For example, say you cut a cake in two and take one slice. As a fraction, you put the slice first (1) over the number of slices (2), so it looks like $\frac{1}{2}$.

To halve a number or a shape always means to divide it by 2. For example, look at the image of a whole pizza and half of a pizza. The whole pizza is split evenly down the middle.



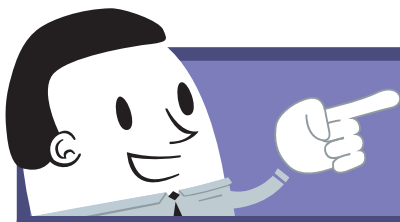
Similarly, if you have 6 and you want to divide it by 2, $6 \div 2 = 3$. Remember, if you are talking about money, it needs to be in cents as well as dollars. For example, \$1.50.

To find a quarter of something means to divide it by 4. Alternatively, you can find half of it, then half of that. Look at the whole pizza compared to a quarter of it. You can split the whole pizza down the middle, then the two remaining pieces can be split again to make four pieces.



Imagine you were asked to split \$8 into quarters. You know you should halve 8 (4) and then then halve 4 (2). Your answer would be the

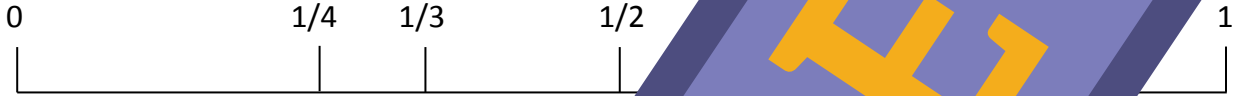
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Skills Examined



You need to understand the difference in value between different numbers. You may be asked to place them on a number line. A number line is a straight line with arrows at both ends. Points are marked on the line. Each point represents a number, and they usually increase from left to right. Look at the example below.



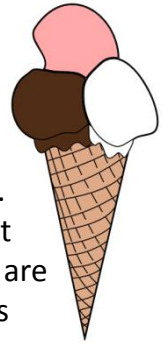
Decimals

You may also be asked to place values on a number line. Decimals are numbers between whole numbers and contain a decimal point. For example, 0.78 and 3.8. Working out their value is easy – the number on the left of the decimal point is the same as a whole number, and the number on the right is a fraction of a whole. The extra that is attached. For example, 1.5 is 1 and 5 tenths. It is bigger than 1, but smaller than 2. Look at the example below.



Rate

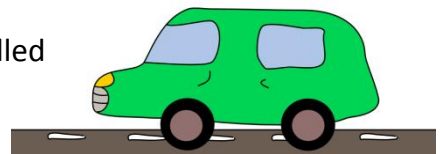
Rates are used to compare two different *units of measurement*. An example of a rate is speed, which is measured in metres per second. For instance length is measured in metres, volume in litres and time in minutes. Examples of rates include: the cost of a part time job per hour, the cost of ice cream per scoop, the speed a car does in kilometres per hour. They are written with the unit that stays on the left and the unit that changes on the right.



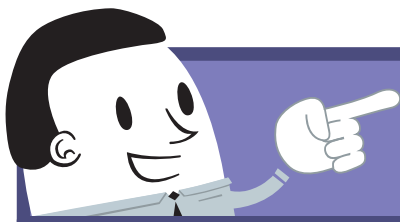
If you earned \$18 an hour working part time, you would write 1\$/scoop. If you earned \$18 an hour working part time, you would write 1\$/scoop. If you were travelling at 60, you would write 60km/h.



For example, if you were travelling at 60km/h, and you wanted to find out, say, how far you had travelled in 3 hours, you would do $3 \times 60 = 180$ kilometres.



The inverse of minus (-) and times/multiply (x) is the opposite of divide (÷). The inverse of divide (÷) is multiply (x). The inverse of plus (+) is minus (-). The inverse of multiply (x) is divide (÷). The inverse of minus (-) is plus (+). The opposite is *inverse*. On the test you may be asked to do sums asking you to



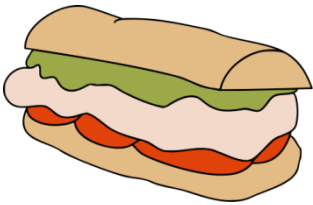
Skills Examined

find the *inverse equation* of a sum you are given. For instance, if $5 = 8$ or $5 + 3 = 8$, the *inverse* would be $8 - 3 = 5$ or $8 - 5 = 3$. Similarly, if 15 or $5 \times 3 = 15$ is $15 \div 3 = 5$ or $15 \div 5 = 3$. This makes sense: if 3 groups of 5 equal 15, then 15 contains 3 groups of 5 or 5 groups of 3.



Multistep problems

Not all sums and problems can be solved in one step. Sometimes there are three things to come across the answer. Often the problem is more complex and you will have to work out what sums to do yourself. Take the following problem as an example.



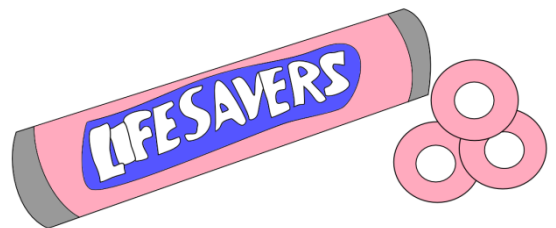
Eric is going on a trip to the airport for the weekend. He has \$20 in his wallet, and he wants to buy a sandwich that costs \$6.50, a packet of lifesavers that costs \$1.80, a bottle of water that costs \$8.20 and a taxi home. How much more money does Eric need?

After reading this problem, you need to know how much all the things Eric wants to buy can work out if the \$20 he has is enough.

Step 1:
 $\$6.50 + \1.80

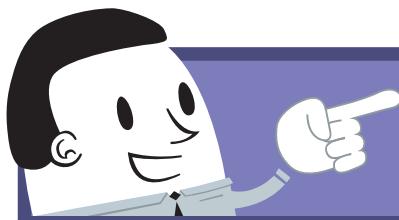
Therefore, the total cost is \$21.30, but Eric only has \$20. To find out how much more money he needs, you need to find the *difference* between \$21.30 and \$20.

\$



Questions

...to match a rule to a number pattern. A pattern is a list of numbers that follow a sequence. To work out the rule a pattern is following, you need to find the difference between each number or picture in the sequence and work out how much the difference between them is. Are they increasing are they decreasing? How? Are they increasing by 3 each time? Are they halving? Are they going up in odd numbers?



Skills Examined

Number pattern examples

1, 4, 7, 10, 13, 16, 19...

This pattern starts at 1 and jumps up by 3 each time

Can you see? $1 + 3 = 4$, $4 + 3 = 7$ and $7 + 3 = 10$!

Can you guess what number comes after 19? It's

1, 2, 4, 8, 16, 32...

The pattern starts at 1 and doubles each time
Each number is two times the number before

$1 \times 2 = 2$, $2 \times 2 = 4$ and $4 \times 2 = 8$.

Can you guess what number comes after 32?

Picture pattern examples

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.

Each new picture has an extra dot. In the first picture, there is 1 dot, then there are 3, then there are 6, then there are 10. The number of dots in the row increases by 1. For instance, the first row has 1 dot, the second row has 2 dots. The third row has 3 dots and so on. Can you guess how many dots there will be in the 6th row? There will be 6! How many dots will there be in the 10th row?

Measurement

Measurement

Measurement

something

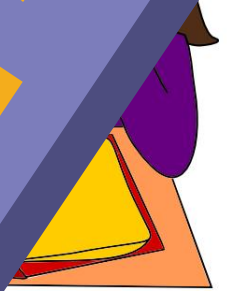
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measured kilometres,

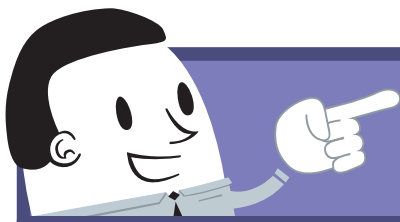
metres.

to count liquid –

millilitres.

(weight of something) is

grams and grams.

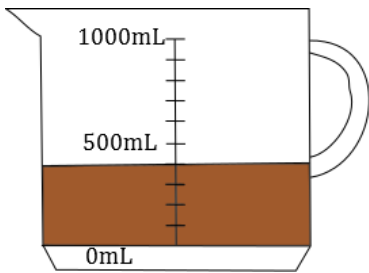


Skills Examined

Rulers are often used as tools to measure things. To measure something like a piece of string, line one end of it up with the line used to mark the ruler. Does the other end of the string reach to the 15cm mark on the ruler? If so, the ruler does the other end of the string reach to?



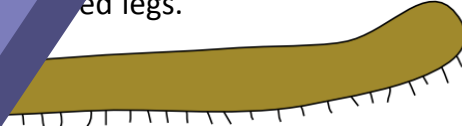
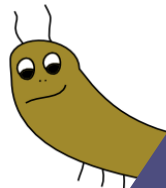
Therefore the string is 15cm!



The same... such
chocol... marks on
The...
Hi... at the top of
... under the
... mL of milk! Yum!

It is vital that you understand... be asked to estimate the amount of liquid in a certain... measuring jug. Your average bottle of milk is 2 litres. Your... metres. Your average 25 metre swimming pool holds an...

Other length... between centimetres and metres or metres... in a metre and 1000m in a kilometre. The... means 100 and *kilo* means 1000! ... legs.



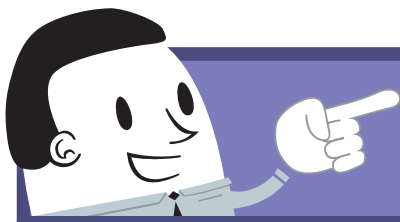
Chance

The... likelihood that it will occur. The event could be... that will rain tomorrow, the likelihood of your nan... of reaching into a lolly bag and pulling out a black... you use words like certain and unlikely. Look at the... self what they mean:

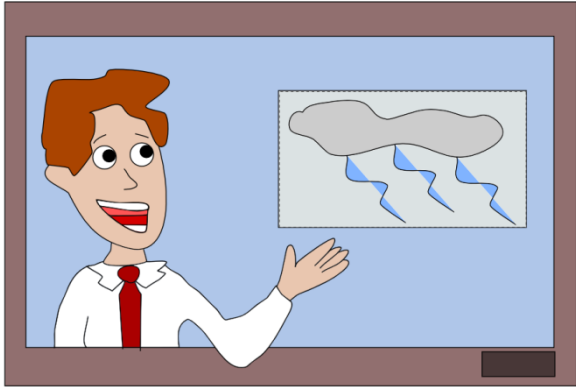


... will definitely happen. For instance, if you roll a die, it is... er between 1 and 6 will appear.
... good chance it will happen. For example, it is likely that it will be...
... probably won't happen. For example, it is unlikely that you will see a... get at school today, but you couldn't say it's *impossible*. Even though there

SAMPLE



Skills Examined



is a low chance
ruled out completely
Impossible
of it happening
impossible
grow



rain tomorrow, he could be wrong! So the weather

Look at this wheel of colours. If I spun the wheel
red section?

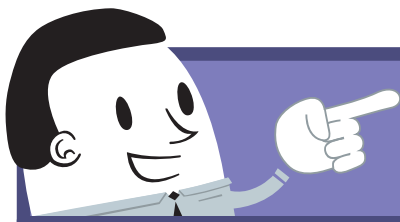
The answer is... The largest chunk of the circle, so I have a bigger
chance of... of it landing on the green.

Fraction... of shapes and amounts
of... to show the chance or
like... imagine you were to toss
... you could throw heads
... there is one chance in two
... chance of throwing tails.



Have you ever played a game that involves rolling dice? When you
roll a die, you have a $1/6$ chance of rolling any of the six numbers
displayed on its sides. Opposite sides add up to seven. A question
in the test may ask you to add up the faces of several dice or the faces
you can see of one die, so it is important that you understand how they
work!

SAMPLE



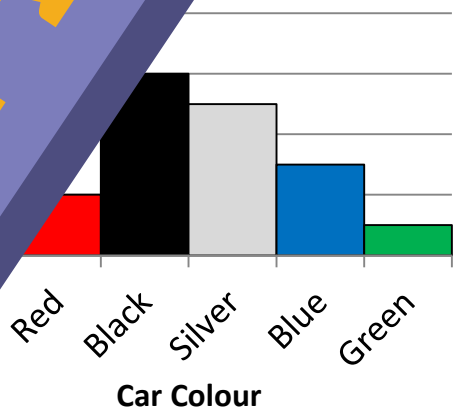
Skills Examined

Data

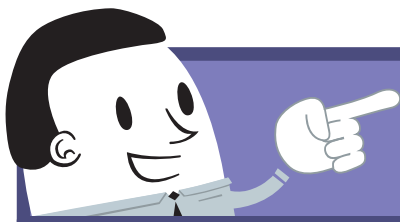
There are many different ways of displaying mathematical information. If you were trying to figure out which colour car was the most popular, you could watch the road for ten minutes, and count the number of cars of each colour. If you watched the road for ten minutes, you might do up the following table. You could have seven white cars, two red cars, six black cars, five silver cars, one blue car and one green car. To put them in a graph, you would write all the different colours in the bottom row, and the numbers from 1 – 10 up the side. In each column, you would draw a car. You could do this as a pictograph, for example:



Alternatively, you could draw a bar chart. In this chart, the bar for each colour would be shaded up the number of cars.



...comments about either the graph or table you draw or one that is... imagine you were looking at a graph of the different pets everyone in... and be asked which animal was most popular or whether it was true or... he had rabbits than birds. It is therefore essential that you understand... n!



Skills Examined

You could also display the information in a table. A table would have two rows or columns, one entitled *colour* and the other entitled *number of cars*. In the *colour* section you would write white, black, red, green, yellow, blue and silver; and in the *number of cars* section you would record how many cars you saw in each colour. For example:

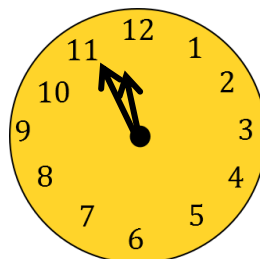
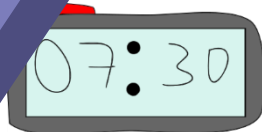
Car Colour	White	Red	Black	Green
Number	7	2	3	1

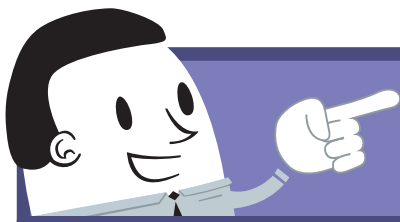
Sometimes a table is used to show a school's *timetables*. You will probably have one in your school which you have each day, such as when you have music and when you have English. The days of the week will appear up the top, and the times down the side.

	Monday	Tuesday	Wednesday	Thursday	Friday
9:00	Maths	English	Science	Drama	Music
10:00	PE	Art	Maths	English	PE
11:00	English	PE	French	PE	SOSE
12:00	Art	PE	Maths	PE	PE
1:00	Lunchtime				
2:00	PE	Art	PE	PE	Sport
3:00	English	PE	English	PE	Maths



On a digital clock, the big hand tells the hours and the little hand tells the minutes. On an analogue clock, the hour is on the left and the minutes are on the right. Here are some examples:



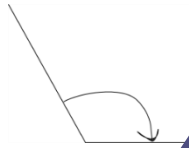


Skills Examined

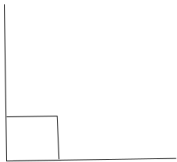
Space

Angles

Whenever two straight lines join together at a point, they create an angle.

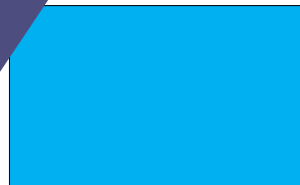


There are lots of different types of angles, and they are measured in degrees, which has the symbol $^{\circ}$. A perfect corner, such as a square, is known as a *right angle*. A right angle is exactly 90° . An angle greater than 90° is called an *obtuse angle*; anything smaller than 90° is called an *acute angle*. The largest angle you can get is a circle which has 360° in it. A straight line is 180° . Look at the following angles – can you tell what type they are?

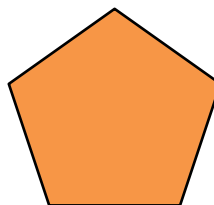


Shape

Do you know all your shapes? Can you name them? Squares and triangles. 3D shapes are those like cubes and spheres. Use the information to refresh your memory of all the different shapes.



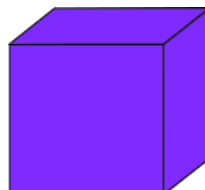
Rectangle
4 sides
4 corners
2D shape



Pentagon
5 sides
5 corners
2D shape

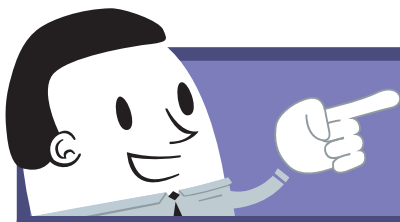


Triangle
3 sides
3 corners
2D shape

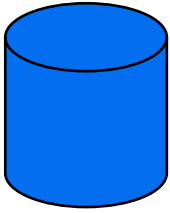


Cube
6 faces
8 corners
12 edges
3D shape

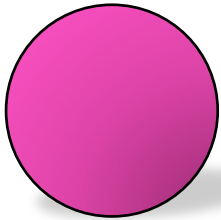
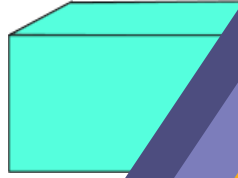
SAMPLE



Skills Examined



Cylinder
3 faces
No corners
2 edges
3D shape

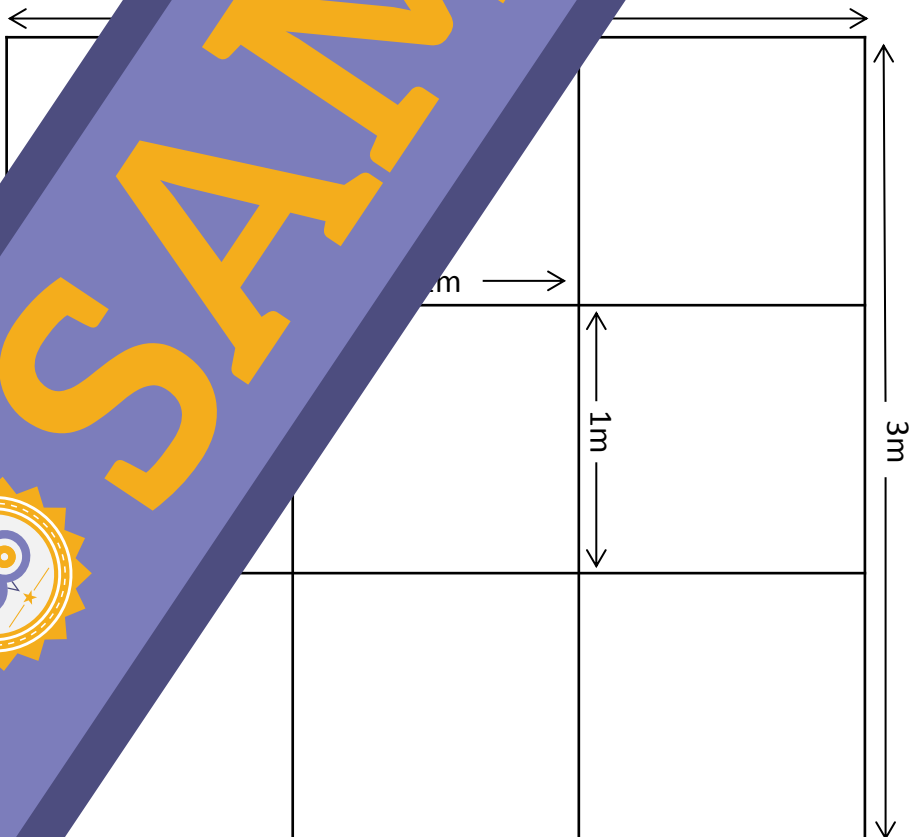


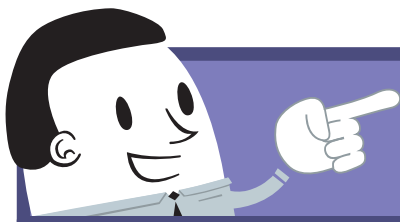
Sphere
1 face
No corners
No edges
3D shape

You can measure how much space a 2D shape takes up. Area is measured in square units, like cm^2 or m^2 . A square with a side length of 3 units would mean three squares with side length 1 unit.

Area is measured in square units. If a square shape was 3m^2 , it would mean three squares with side length 1 meter.

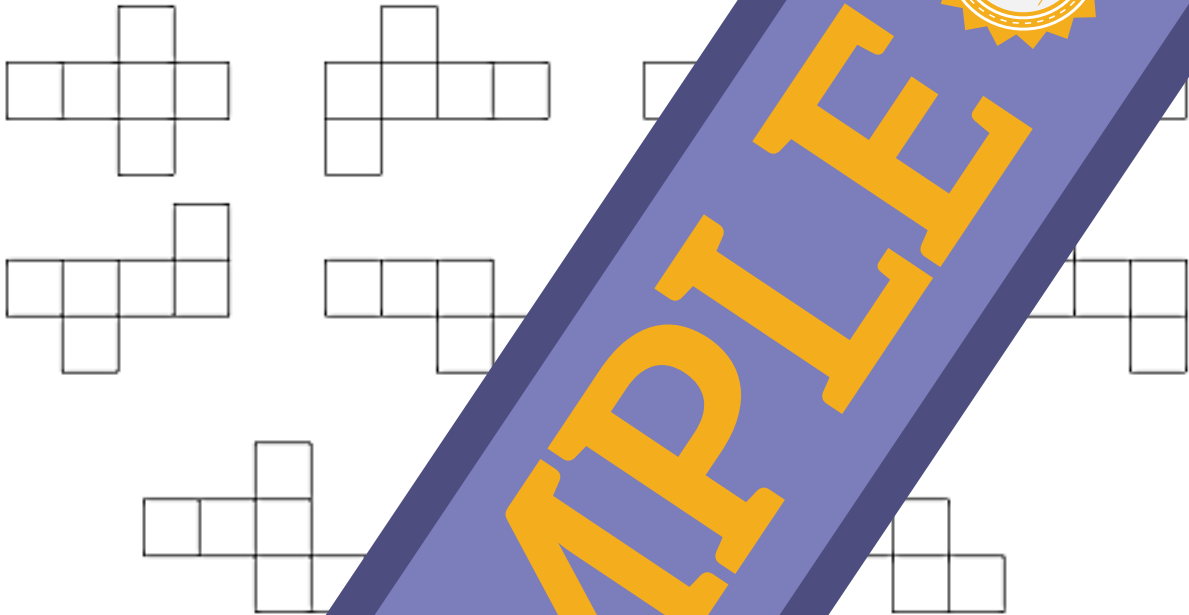
Look at the following shape:





Skills Examined

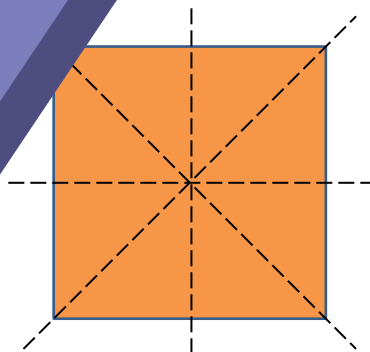
Sometimes you may be asked to identify the *net* of a shape. The net would look like if it was made of paper and unfolded. Have you ever tried gluing paper together? For example, the net of a cube could look like this:



If you cut the above shapes out and glue the sides together, you would have a cube!

The test will also ask you to identify lines of symmetry. If something is symmetrical, it means both sides are the same. A line of symmetry is the line down the middle of the shape that splits it into two equal halves. A square, for example, has lots of lines of symmetry. A line from one corner to the opposite corner - it would be split into two even triangles. A line from the middle of one side to the middle of the opposite side, it would be divided into two even rectangles. Try to draw the lines of symmetry for each shape. See how both sides of each

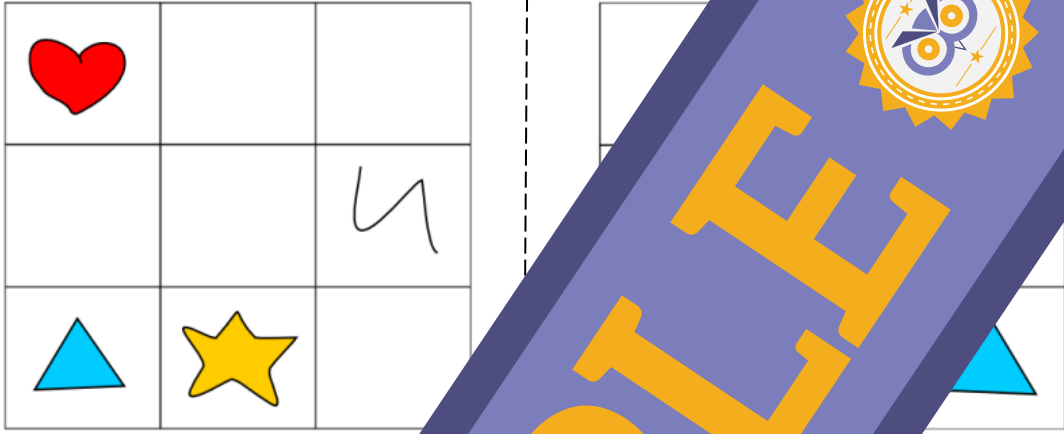
SAMPLE





Skills Examined

You may be asked to complete a *grid square* so that both sides are the same. See the example below.

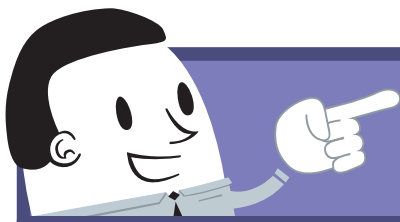


Do you know tessellation is? When shapes are repeated over and over, such and repeat forever, making a pattern. A beehive is made of little tessellating hexagons.



SAMPLE

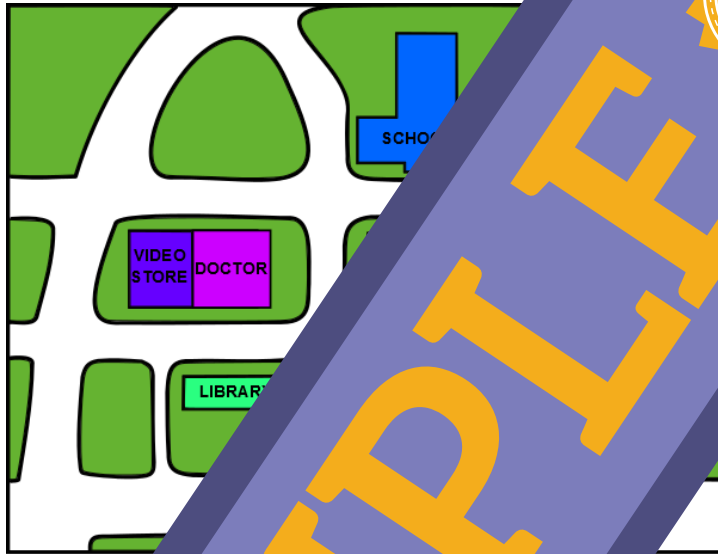




Skills Examined

Location and Direction

Have you ever helped your parents to read a map in the car? A map is a small section of the world – it shows you where everything is and how to get there.



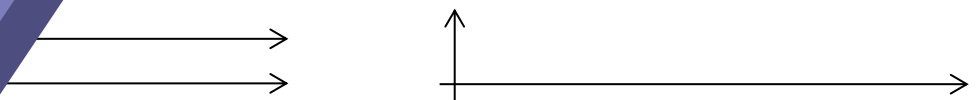
Maps will usually have a compass rose to show you the directions. It will look like four arrows joined in the middle that point north, south, east and west. One arrow pointing up.

→ east

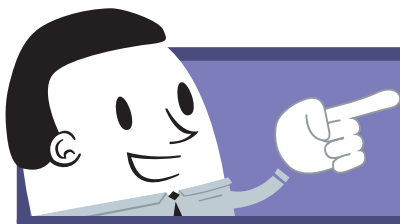
South

Most maps are drawn with north (towards the north pole) and the bottom (towards Tasmania). The right arrow will be pointing east (towards Madagascar). A left arrow will be pointing west (towards Madagascar). A saying to remember the compass directions is with the saying *never eat spaghetti* and go clockwise – *north, east, south, west!*

You will know when reading a map are *parallel* and *perpendicular*. If two lines are parallel, they are both perfectly straight and pointing in the same direction. If two lines are perpendicular, they go the opposite way to each other. Horizontal and vertical. At some point, they will cross over.



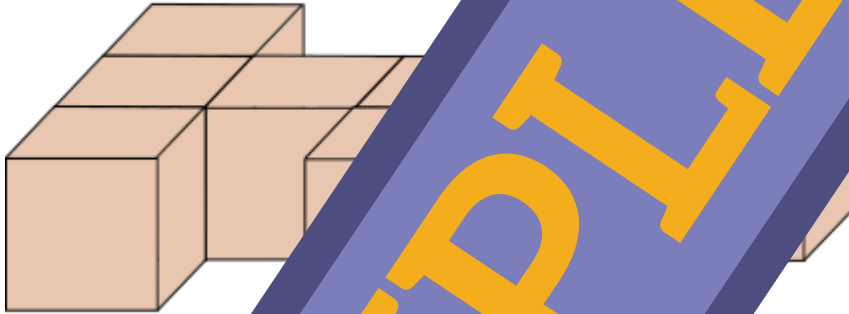
SAMPLE



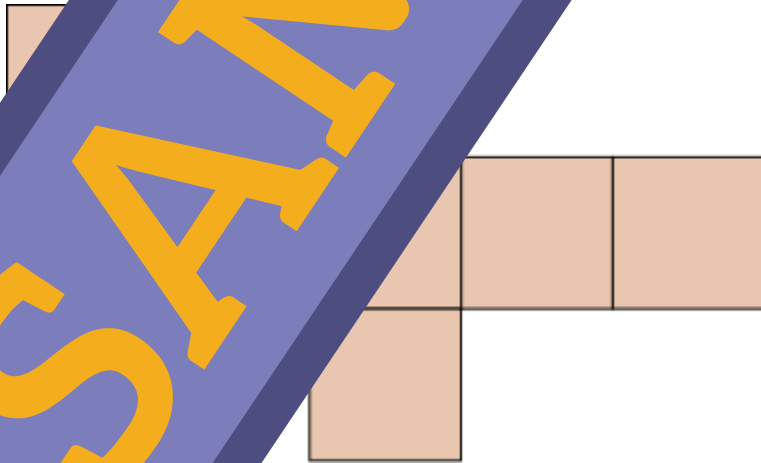
Skills Examined

Movement

You may also be asked to visualise (imagine) what a tricky 3D shape looks like from a different angle. To get good at this, you really need to have lots of blocks, as you will become familiar with their shape and how they fit together from different sides. For example, look at the following shape:



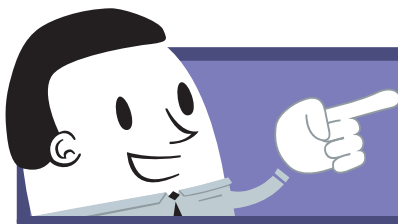
Can you imagine what it would look like from the bottom?



If you looked at the shape from the top, you wouldn't be able to see the top of the blocks. In the 3D image that there are three cubes attached to the top of a straight line of four cubes attached, and one cube attached to the bottom of the second cube from the bottom!



SAMPLE



Practice Questions

Nora works as an assistant marine biologist at an aquarium called Oceanworld. Her job is to feed all the creatures each day and make them happy, healthy and . During her daily routine, she encounters many challenges. How do you help her out?



Q1

Oceanworld is home to 32 Fairy penguins. The penguins are very cute. Today, Nora has 15 cuttlefish. If she cuts each cuttlefish into 2 pieces and gives one piece to each penguin, how many pieces of cuttlefish will be left over?



Q2

If the penguins are only given one piece of cuttlefish today, what is the chance they will be fed?

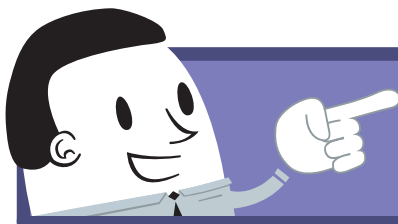
- Certain
- Likely
- Unlikely
- Impossible

Q3

Next day, Nora has 100 pieces of cuttlefish. The lions are covered in fur and live on the south side of the island. If she gives 55 pieces to the lions and 45 pieces to the penguins living at Oceanworld and Nora has 45 squid to feed the lions, how many squid will be left over?



SAMPLE



Practice Questions

Q4

There are lots of souvenirs for sale at Oceanworld. Nora's little brother so asks his sister to buy him one. Because she is staff, Nora gets a special price. If a toy seal usually costs \$31, how much does Nora pay?



Q5

If Nora paid for the seal with a \$20 note, how much change would she have received to make up the right amount? How much change would she have received if she could pay with a \$10 note?

Q6

Add $\frac{1}{2}$ to the number line below.

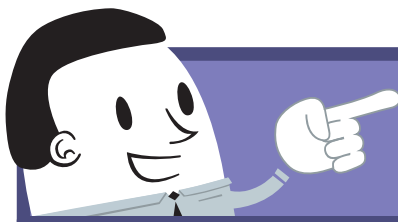


Q7

As an assistant, Nora earns \$10 an hour. How much does she earn in a week? If she works from 9am – 5pm, how much does she earn in \$/hour.



SAMPLE



Practice Questions

Q8

Nora notices sea snails clumped together in different sized groups. In the 1st group, there are 3 snails. In the 2nd group, there are 9 snails and in the 3rd group there are 18 snails and in the 4th group there are 30. How many snails are there in the 5th group?

Continue the pattern: 3, 9, 18, 30, ____.



Q9

There are four polar bears in Oceanworld. The pool that houses the polar bears is one of the pools in the park. The pool that you think is the best for the polar bears is the one that has the most water. Estimate for the amount of water it has.

- 1 litre
- 10 litres
- 100 litres
- 100 000 litres



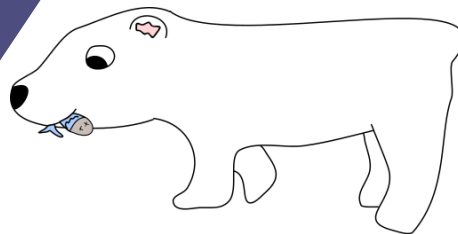
Q10

Add 0.1 to the number

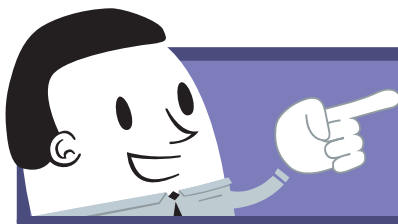


Q11

Eskay the polar bear stands on his hind legs, he reaches a height of 1.2 metres. How tall is Eskay when he is on all fours?



Eskay the polar bear has to feed the walruses or the turtles next, so decides to flip a coin. If it's heads, she'll feed the walruses first; if it's tails, she'll feed the turtles. Express the probability of Eskay feeding the walruses first as a fraction.

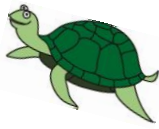


Practice Questions

Q8

Occasionally injured wildlife are brought to Oceanworld to be treated. The following table shows what species of animals have been brought in for treatment. Draw a vertical bar graph to show the data in a vertical bar graph. The axes have been drawn for you.

Animal	Dolphins	Turtles	Seabirds	Manatees
Number	3	4	15	2

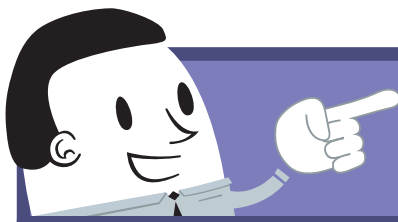


Amount

SAMPLE

Animal Species





Practice Questions

Q13

Oceanworld puts on a number of shows each day, and gives them away so that they know what they can see at each time. Read the table below.



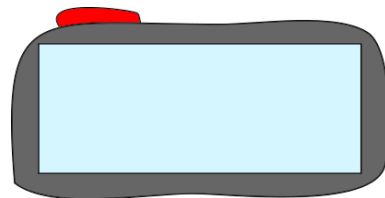
Time	Mon	Tues	Wed	Thurs
10:00		Sea Rescue Show		
11:00	Dolphin Show			
12:00				
1:00	Sea Bird Show			Sea Rescue Show
2:00		Seal Show		
3:00	Seal Show			Dolphin Show
4:00				Sea Bird Show

SAMPLE

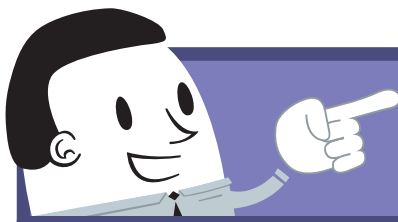
How many times...

What time...

digital clock.



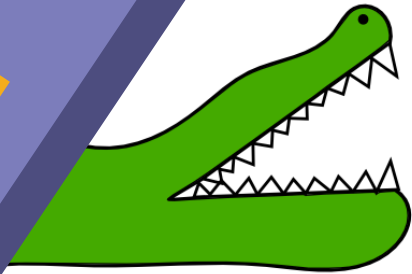
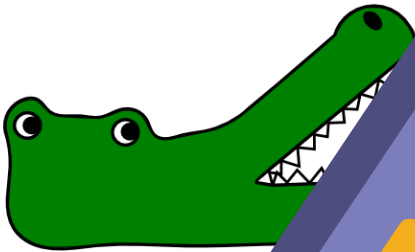
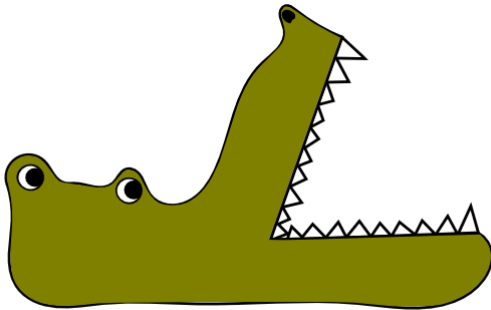
...scue Show go for?



Practice Questions

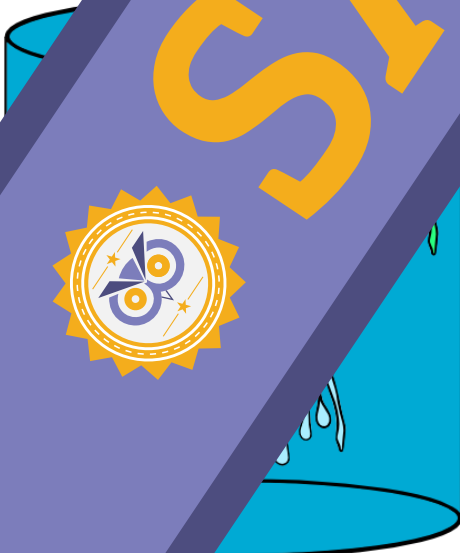
Q14

Oceanworld also has three deadly saltwater crocodiles. These are the largest crocodiles alive today: males can grow as long as seven metres! When they are hunting, their jaws are already open, ready for lunch! Circle the jaw man...



Q15

Look at the shapes below. Circle the two most exotic tropical fish in the aquarium and write their names in the boxes below.

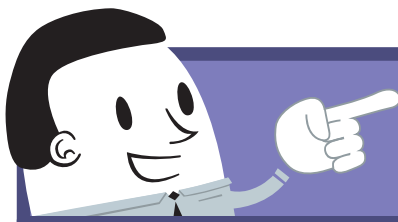


Number of sides

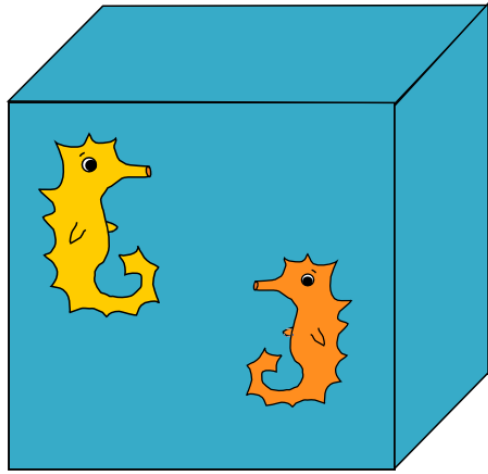
Number of faces

Number of edges





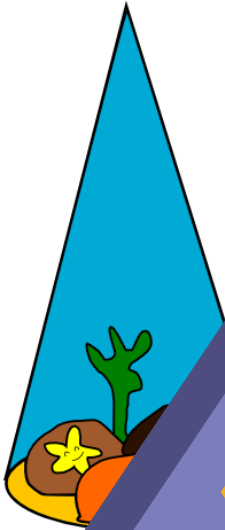
Practice Questions



Name of shape

Number of faces

Number



Name of shape

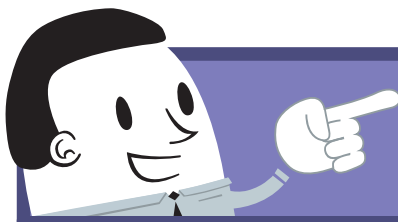
Number of faces

Number of edges



SAMPLE

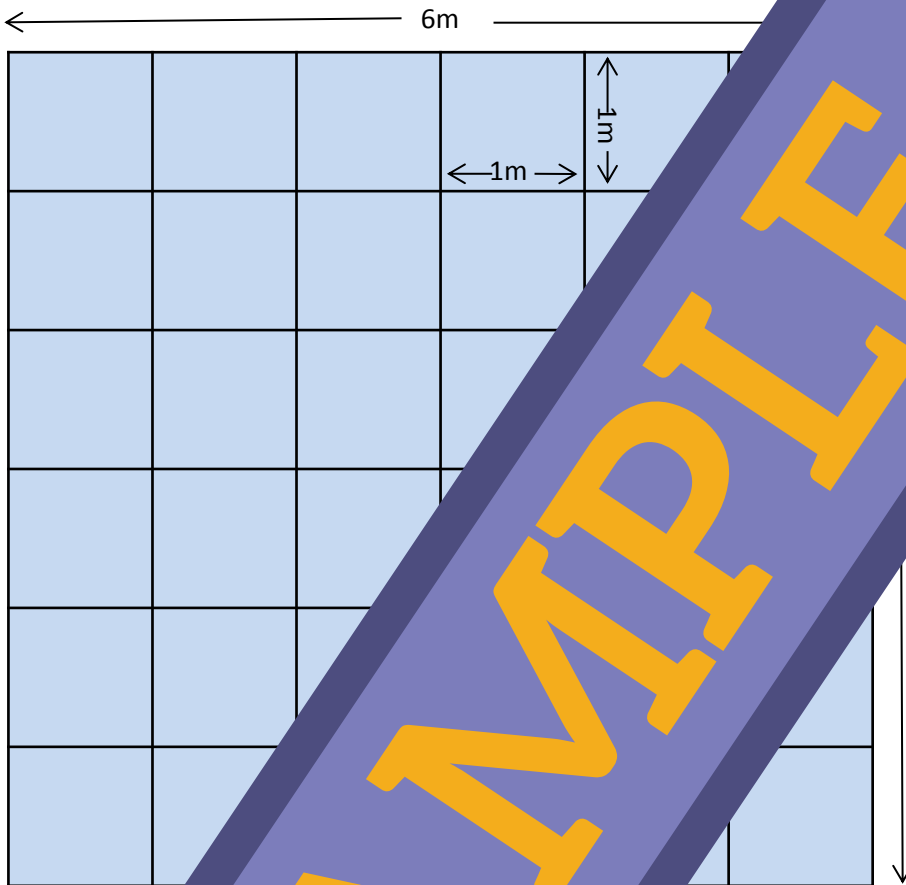




Practice Questions

Q16

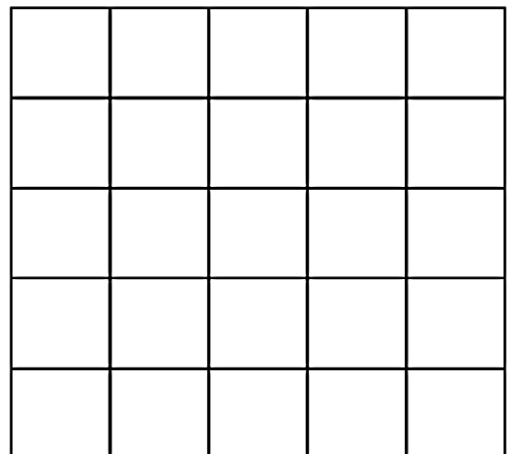
The dolphin pool is shaped like a square. It is drawn below. What is its area in m^2 ?

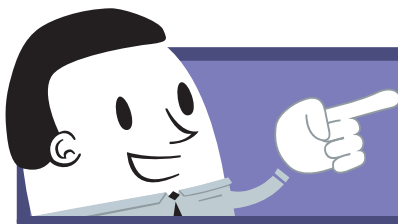


Answer:

Q17

The top row shows a dolphin. Draw a square next to it so that the images are symmetrical. The image should be like a mirror image, not an exact copy.

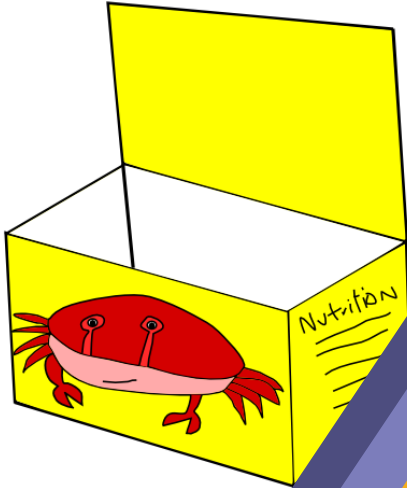




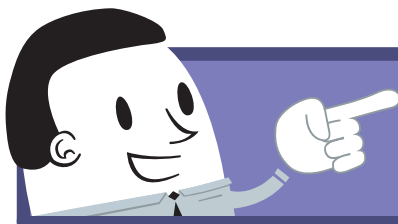
Practice Questions

Q18

The Crab Shack at Oceanworld offers a fish 'n' chips lunch of a rectangular prism-shaped box pictured with tartar sauce and a net of the box, i.e. what the box would look like if it was unfolded.



SAMPLE

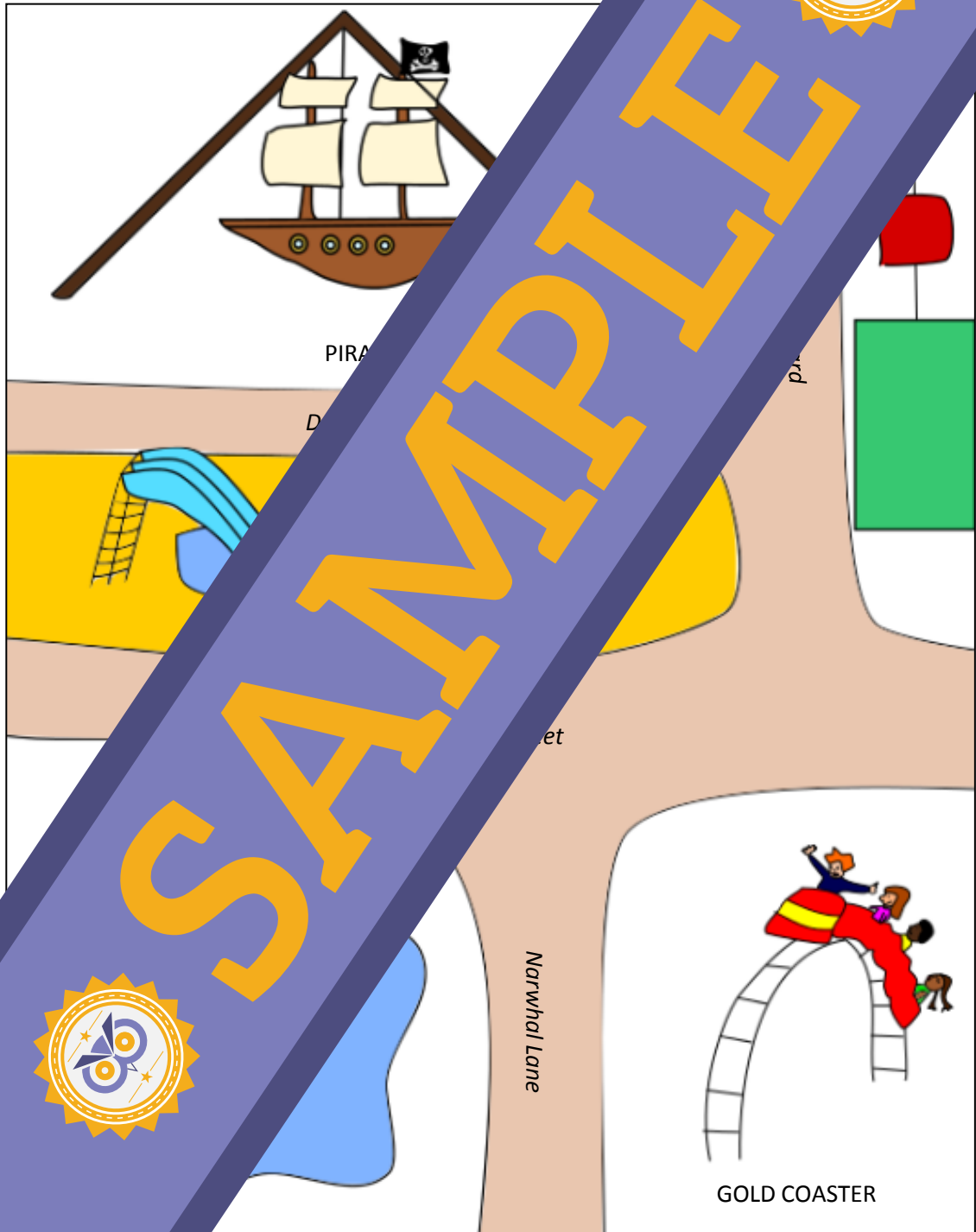


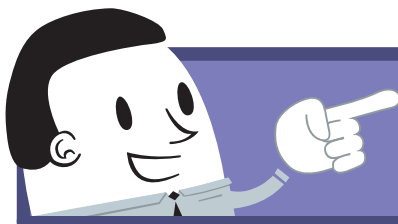
Practice Questions

Q19

Below is a map of the rides at Oceanworld. Examine it and answer the questions on the next page about location and direction.

OCEANWORLD THEMEPARK RIDES MAP





Practice Questions

What street is *parallel* to Dolphin Avenue?

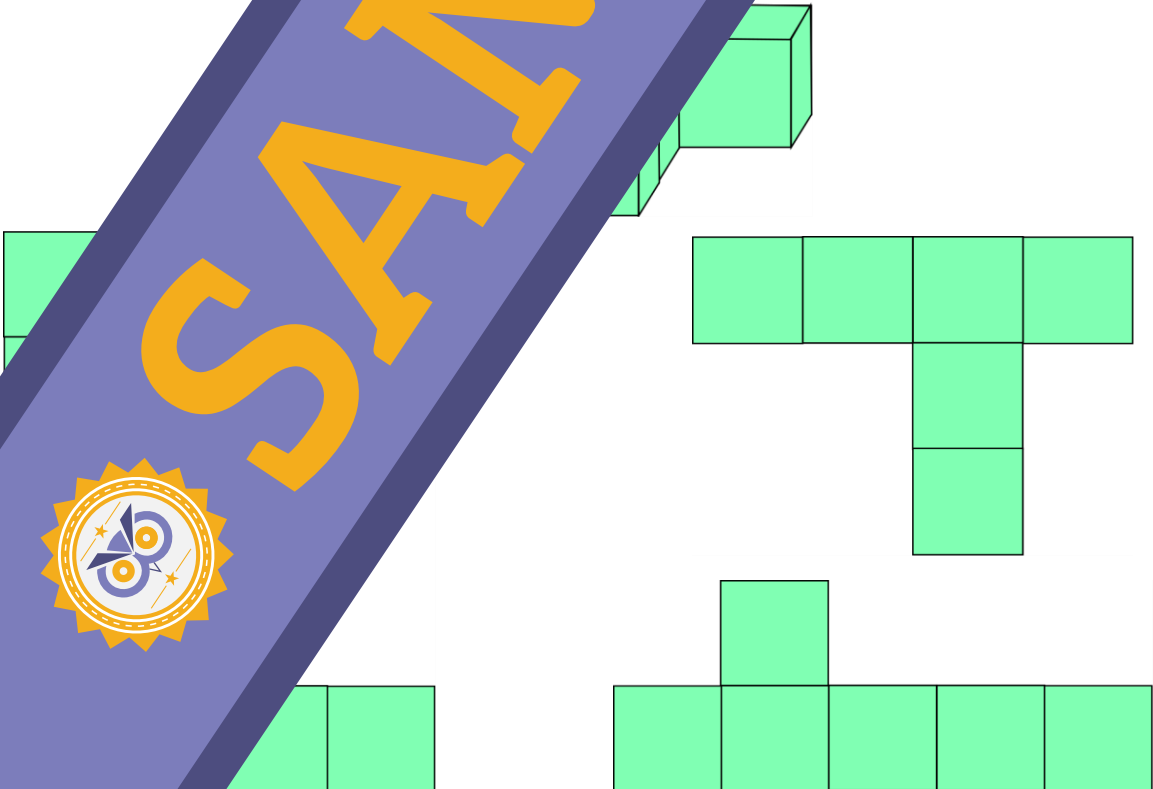
What street is *perpendicular* to Dolphin Avenue?

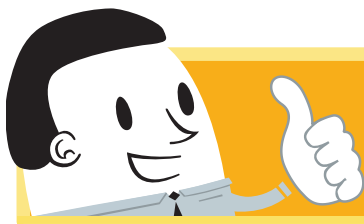
What attraction is east of Rowboat River?



Q20

At the entrance of Oceanworld is a square. If this is what it looks like from the front, circle what it looks like from the back.





Practice Questions

Nora works as an assistant marine biologist at an aquarium called Oceanworld. Her job is to feed all the creatures each day and make them happy, healthy and . During her daily routine, she encounters many challenges. How do you help her out?



Q1

Oceanworld is home to 32 Fairy penguins. The penguins are very cute. Today, Nora has 15 cuttlefish. If she cuts each cuttlefish into 3 pieces for the penguins, how many pieces of cuttlefish will she have left over?

15×3

$= 45$ pieces of cuttlefish

$45 - 32$

$= 13$ pieces left over



Q2

If the penguins are only given 1 piece of cuttlefish today, what is the chance they will be fed?

- Certain
- Likely
- Unlikely
- Impossible

Q3

Next day, Nora has 45 squid. If she feeds 11 squid to the lions, how many squid will be left over?

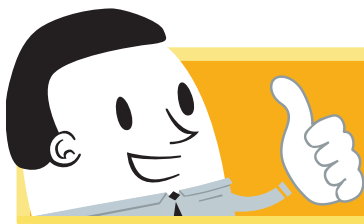
$45 - 11 = 34$

$4 \overline{)45}$

34 squid will be left over.



SAMPLE



Practice Questions

Q4

There are lots of souvenirs for sale at Oceanworld. Nora's little brother so asks his sister to buy him one. Because she is staff, Nora gets a 50% price. If a toy seal usually costs \$31, how much does Nora pay?

$$\text{Half of } \$31 = 31 \div 2$$

15 remainder 1

$$2 \overline{) 31}$$

$$\frac{1}{2} = 50 \text{ cents} \qquad \qquad \qquad = \$15.50$$



Q5

If Nora paid for the seal with a \$20 note, how much change would she have received to make up the right amount? How many coins is she could use?

$$\$20 - \$15.50 = \$4.50 = \text{two } \$2 \text{ coins}$$

Q6

Add $\frac{1}{2}$ to the number line below.



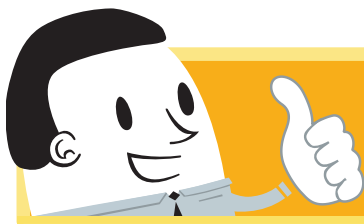
Q7

As an assistant at Oceanworld, Nora earns \$28.50 per week. If she works from 9am – 5pm, how much does she earn in \$/hour.



$\$7.125$ an hour.

SAMPLE



Practice Questions

Q8

Nora notices sea snails clumped together in different sized groups. In the 1st group, there are 3 snails. In the 2nd group, there are 9 snails and in the 3rd group there are 18 snails and in the 4th group there are 30. How many snails are there in the 5th group?

Continue the pattern: 3, 9, 18, 30, ____.

Pattern is going up in multiples of 3

$3 + 6 = 9, 9 + 9 = 18, 18 + 12 = 30, 30 + 21 = 51$



Q9

There are four polar bears in Oceanworld. The pool that houses the polar bears is one of the three pools. Which pool do you think is the best estimate for the amount of water it holds?

- 1 litre
- 10 litres
- 100 litres
- 100 000 litres



Q10

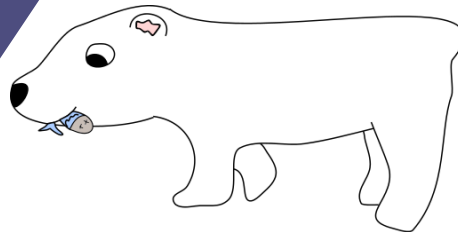
Add 0.1 to the number



Q11

Eskal, the polar bear, stands on his hind legs, he reaches a height of 1.5 metres. How high is Eskal when he stands on all fours?

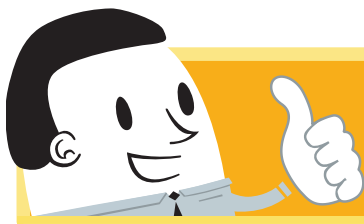
00



...er to feed the walruses or the turtles next, so decides to flip a coin. If it's heads, she'll feed the walruses first; if it's tails, she'll feed the turtles. Express the probability of feeding the walruses first as a fraction.

Probability = 1/2

SAMPLE

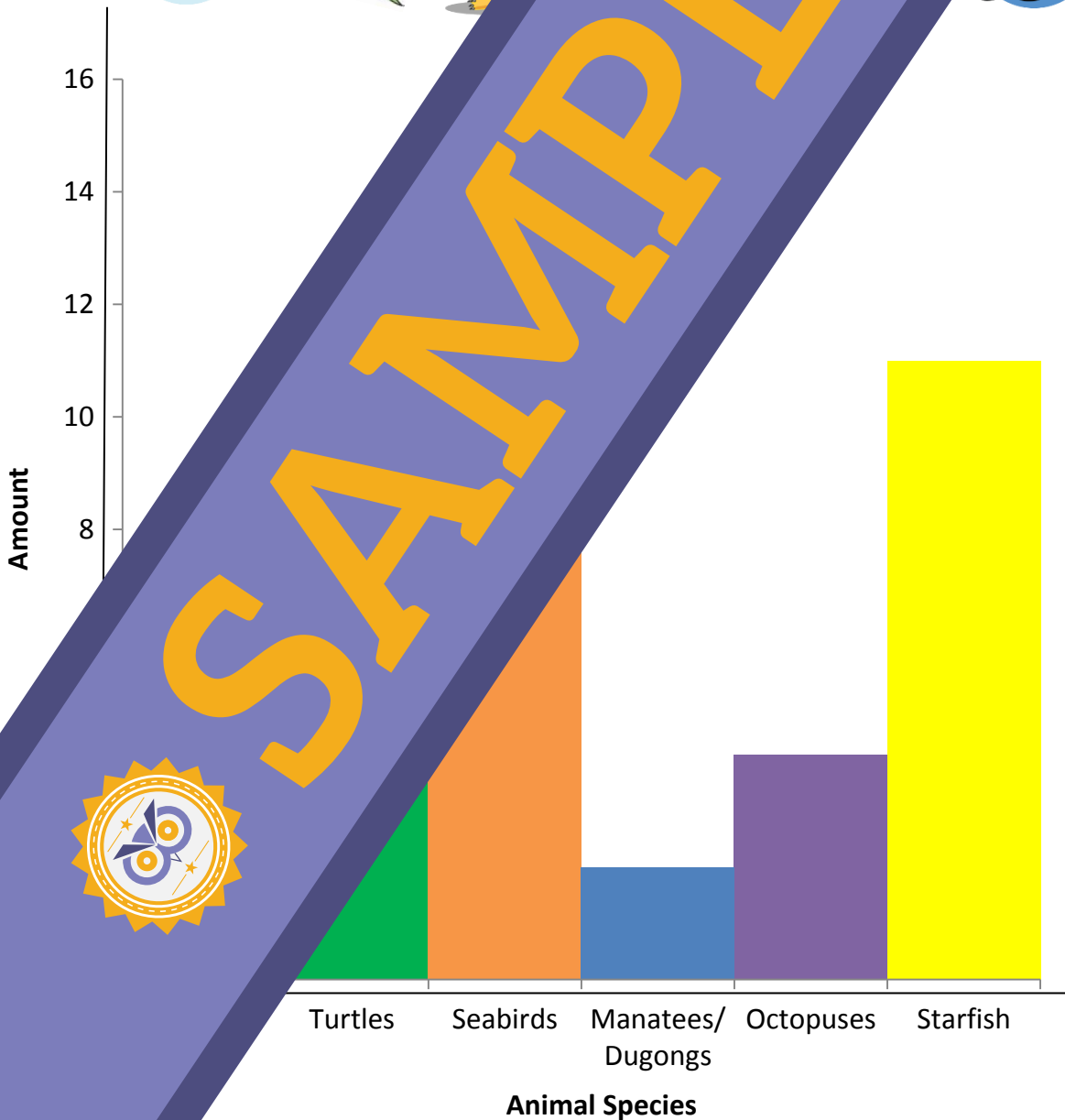
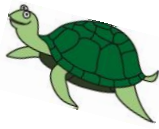


Practice Questions

Q8

Occasionally injured wildlife are brought to Oceanworld to be treated. The following table shows what species of animals have been brought in for treatment. Draw a vertical bar graph to show the data in a vertical bar graph. The axes have been drawn for you.

Animal	Dolphins	Turtles	Seabirds	Manatees/Dugongs
Number	3	4	15	7





Practice Questions

Q13

Oceanworld puts on a number of shows each day, and gives them away so that they know what they can see at each time. Read the table below.



Time	Mon	Tues	Wed	Thurs
10:00		Sea Rescue Show		
11:00	Dolphin Show			
12:00				
1:00	Sea Bird Show			Sea Rescue Show
2:00		Seal Show		
3:00	Seal Show			Dolphin Show
4:00				Sea Bird Show

SAMPLE

How many times...

Five times.

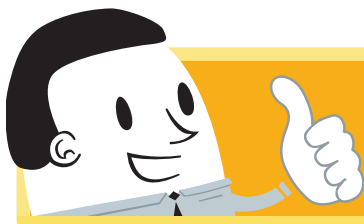
What time...

1:30

digital clock.



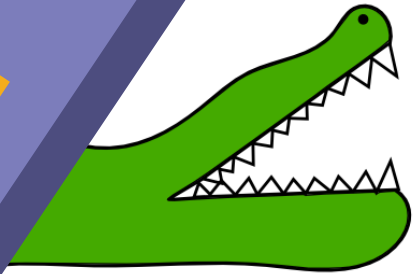
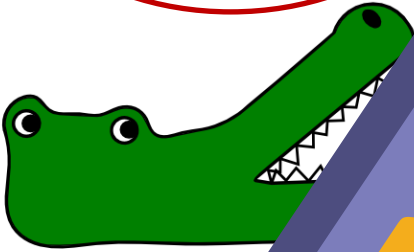
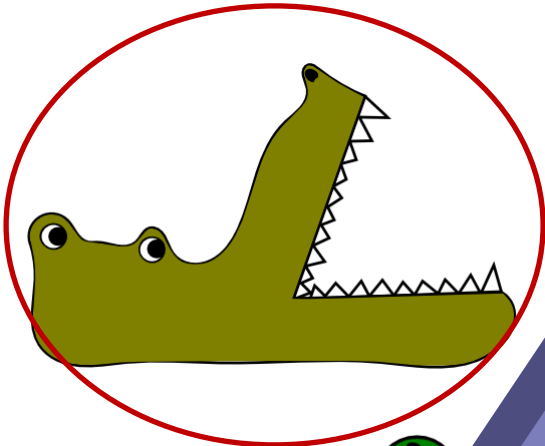
...scue Show go for?



Practice Questions

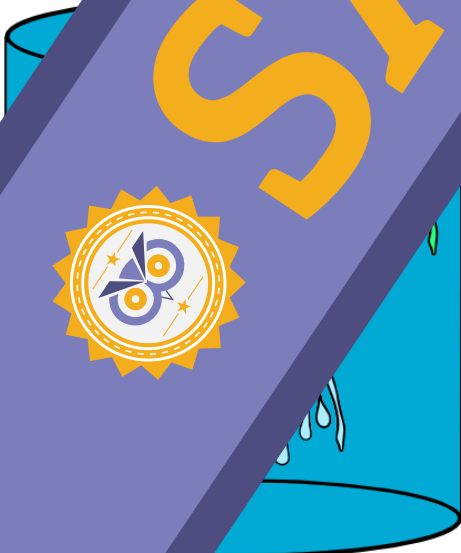
Q14

Oceanworld also has three deadly saltwater crocodiles. These are the only ones alive today: males can grow as long as seven metres! When they hunt, their jaws are already open, ready for lunch! Circle the jaw man



Q15

Look at the shapes below. Write the name of each shape. Write the name of the most exotic tropical fish in the aquarium and



Name of shape

Cylinder

Number of faces

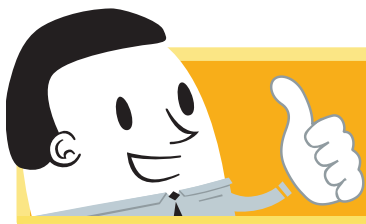
3

Number of edges

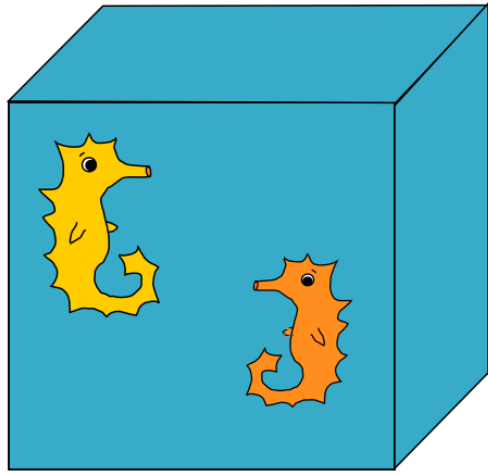
2



SAMPLE



Practice Questions



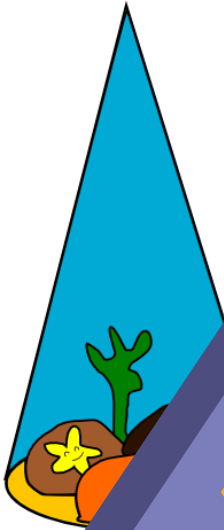
Name of shape

Cube

Number of faces

6

Number of edges



Name of shape

Rectangular Prism

Number of faces

6

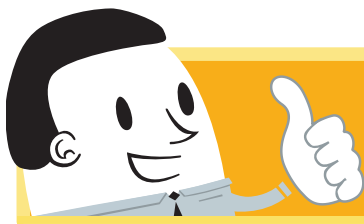
Number of edges

12



SAMPLE

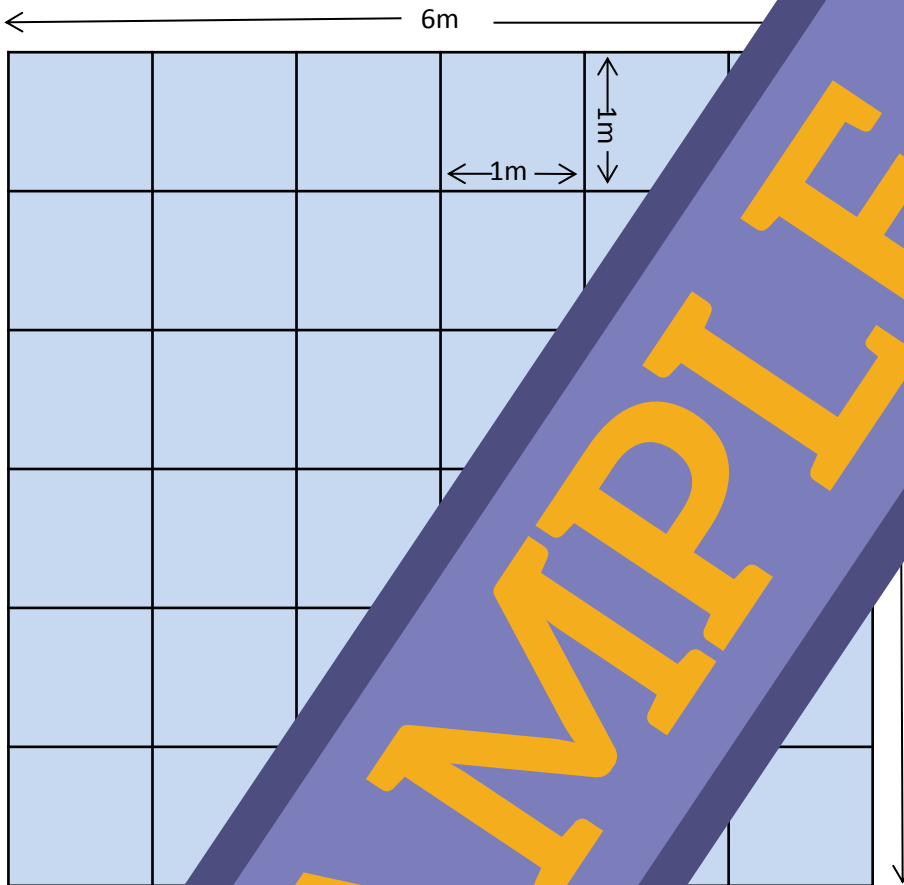




Practice Questions

Q16

The dolphin pool is shaped like a square. It is drawn below. What is its area in m^2 ?

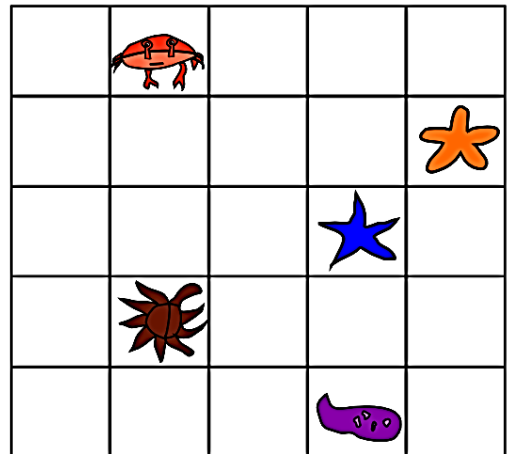


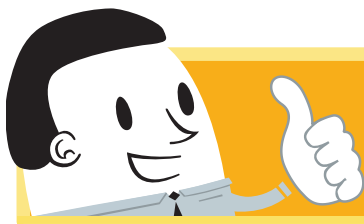
Answer:

36m²

Q17

The top row shows a crab. Draw a square next to it so that the images are symmetrical like a mirror image, not an exact copy.

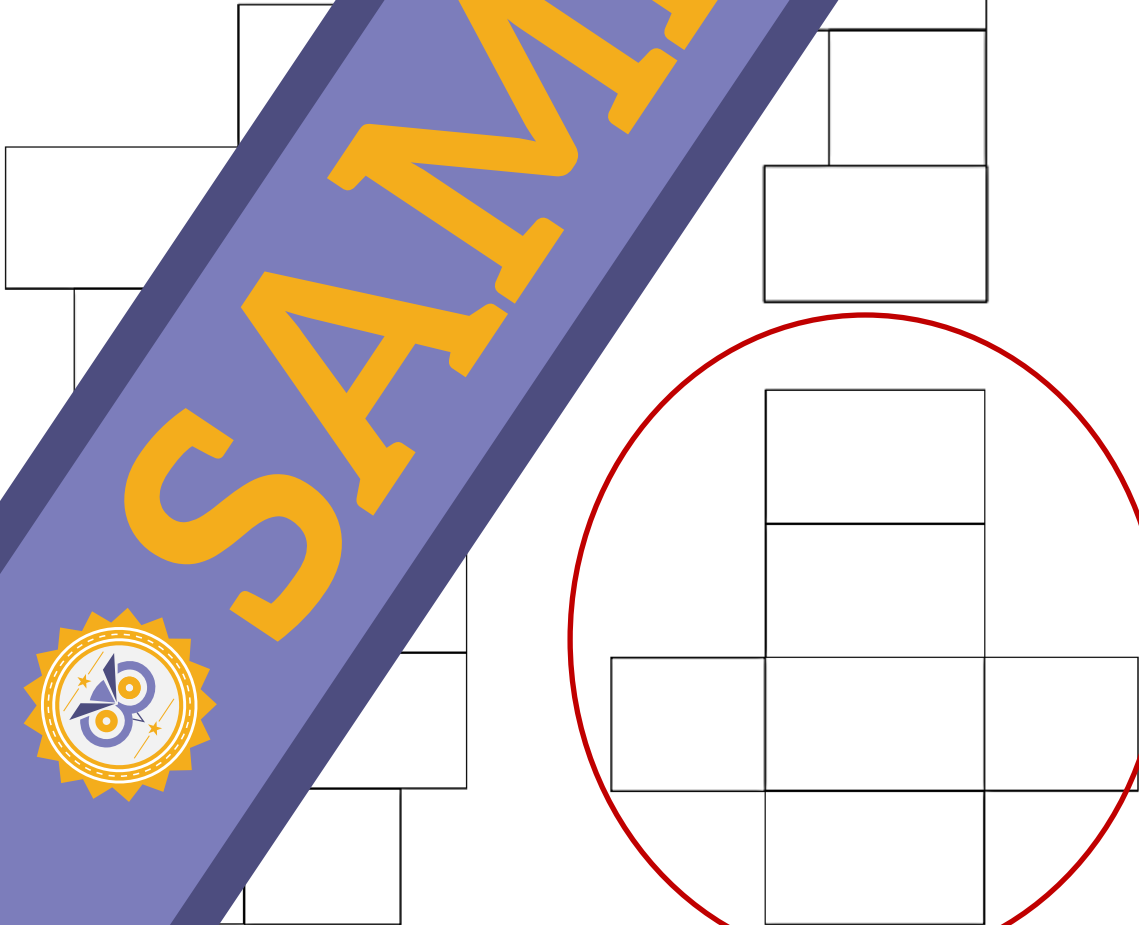
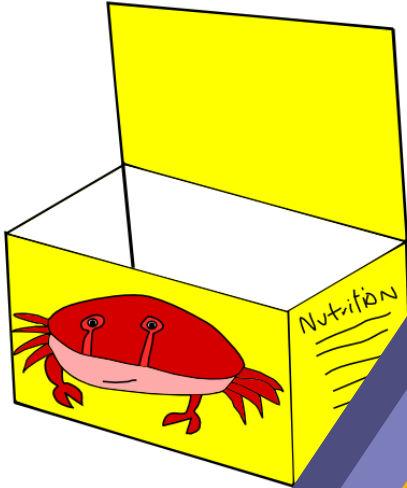




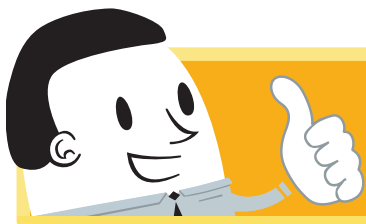
Practice Questions

Q18

The Crab Shack at Oceanworld offers a fish 'n' chips lunch delivered in a yellow rectangular prism-shaped box pictured with tartar sauce and a net of the box, i.e. what the box would look like if it was unfolded.



SAMPLE

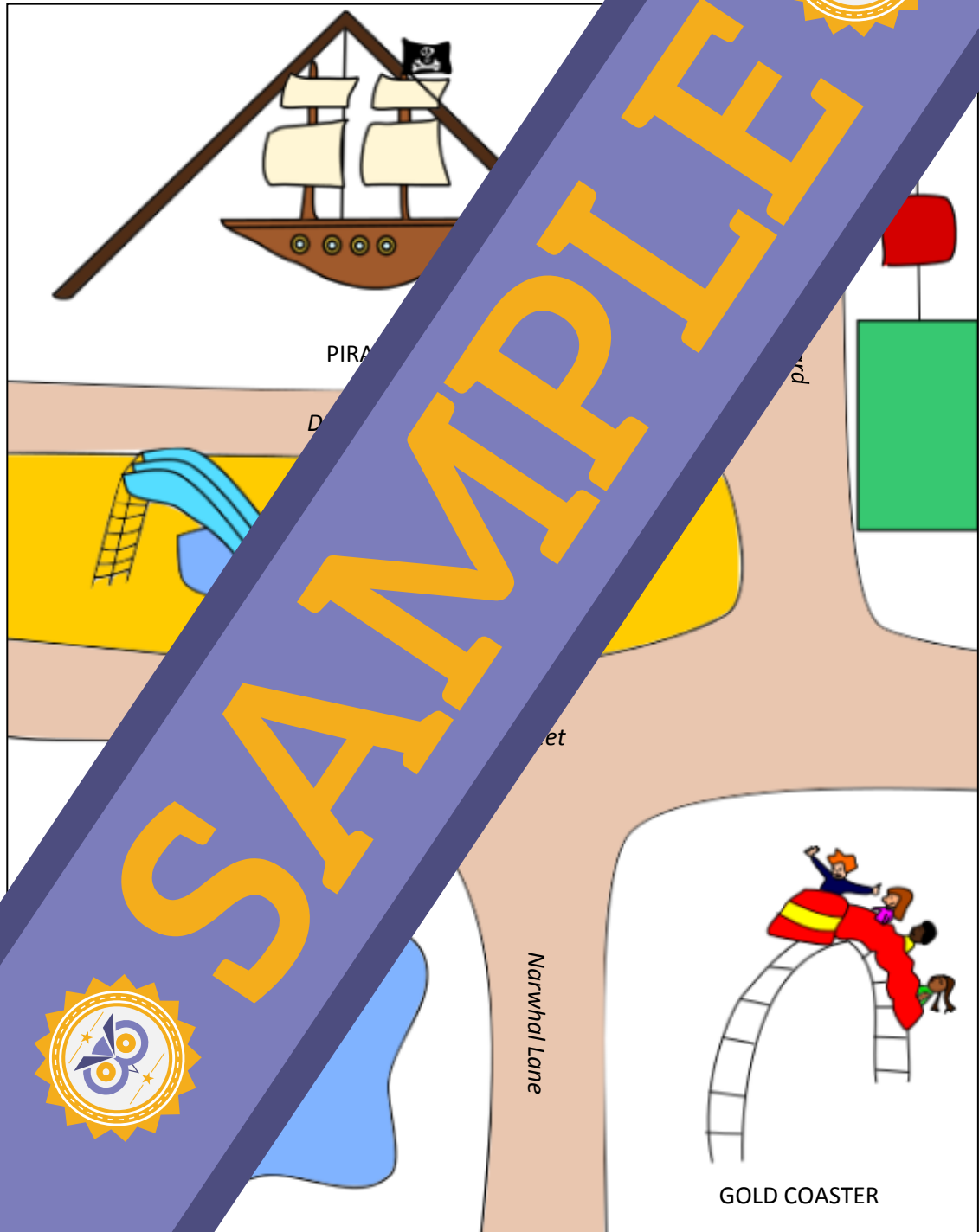


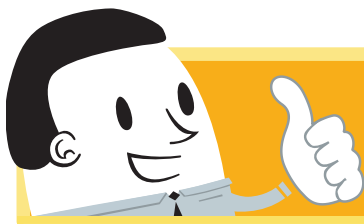
Practice Questions

Q19

Below is a map of the rides at Oceanworld. Examine it and answer the questions on the next page about location and direction.

OCEANWORLD THEMEPARK RIDES MAP





Practice Questions

What street is *parallel* to Dolphin Avenue?

Starfish Street

What street is *perpendicular* to Dolphin Avenue?

Great White Boulevard

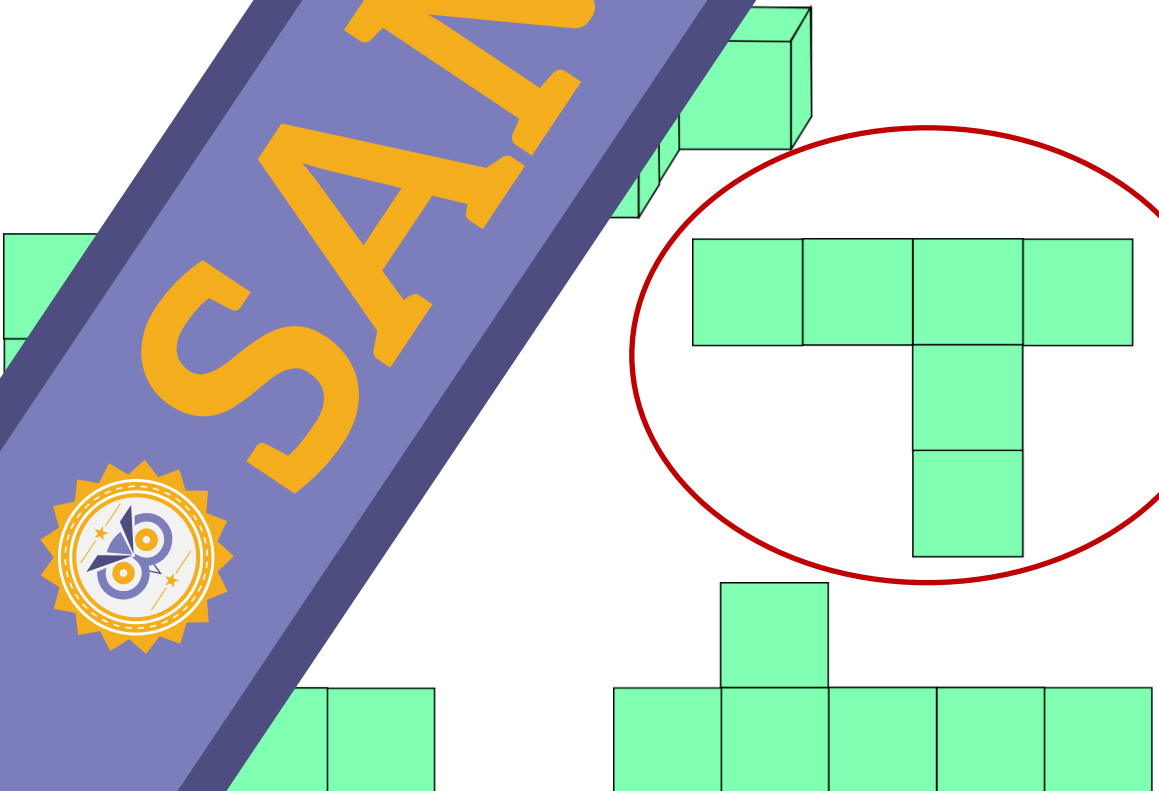
What attraction is east of Rowboat River?

The Gold Coaster



Q20

At the entrance of Oceanworld is a sea shell. If this is what it looks like from the front, circle which one of the following is what it looks like from the back.



SAMPLE



Practice Questions

Question One:

Students should have used their multiplication and subtraction skills to solve this problem.

15 cuttlefish cut into three pieces each = $15 \times 3 = 45$ pieces
 32 penguins eating one slice each = $45 - 32$
 = 13 pieces remaining

Question Two:

This question tests students' knowledge and understanding of fractions and decimals. Students should have merged the information about the price of the fish yesterday and having already had it *today* to deduce that it was $1.00 - 0.25 = 0.75$ dollars per fish again *tomorrow*.

Question Three:

Nora has four sea lions to feed 45 squid. Students should have recognised that this problem the same as dividing 45 by 4, which is 11 with a remainder of 1. Therefore one squid will be left over.

Question Four:

Students should have used their knowledge of division and multiplication to work out that 31 means to divide it in two, and used this knowledge to work out that $31 \div 2 = 15$ remainder 1.

$31 \div 2 = 15$ remainder 1
 $\frac{1}{2} = 50$ cents
 Therefore = \$15.50

Q

This question tests students' knowledge and understanding of fractions and decimals. Students should have determined the amount of change given from a \$20 note for the purchase of 10 items at \$1.50 each. Then determine the least amount of coins that could be used to make the change.



Students should have placed $\frac{1}{2}$ on a 0 - 1 number line and already displaying $\frac{1}{3}$ and $\frac{3}{4}$.



This answer guide is continued on the next page...



...This answer guide is continued from the previous page.

Question Seven:

This question required students to determine an elapsed time division sum with a 3-digit number involving carrying.

$$\begin{aligned}
 9-5 &= 8 \text{ hours a day at } \$280 \\
 280 \div 8 &= 35 \\
 &= \$35 \text{ per hour.}
 \end{aligned}$$

Question Eight:

Students should have been able to ascertain the pattern.

Pattern = values are going up in multiples of 3

$$\begin{array}{cccc}
 3 & 9 & 12 & 30 \\
 +6 & +9 & +12 & \\
 \hline
 & & &
 \end{array}$$

Question Nine:

In this item, students should have been able to estimate the volume of an extremely large volume of water based on their understanding of capacity. The estimate was 100 000 litres.

Question Ten:

Here, students were required to convert the measurements already featuring multiple decimal values.



This question required students to convert the measurement from metres to centimetres.



Students were required to represent the data in a one-way table in a vertical bar graph on a given axes.

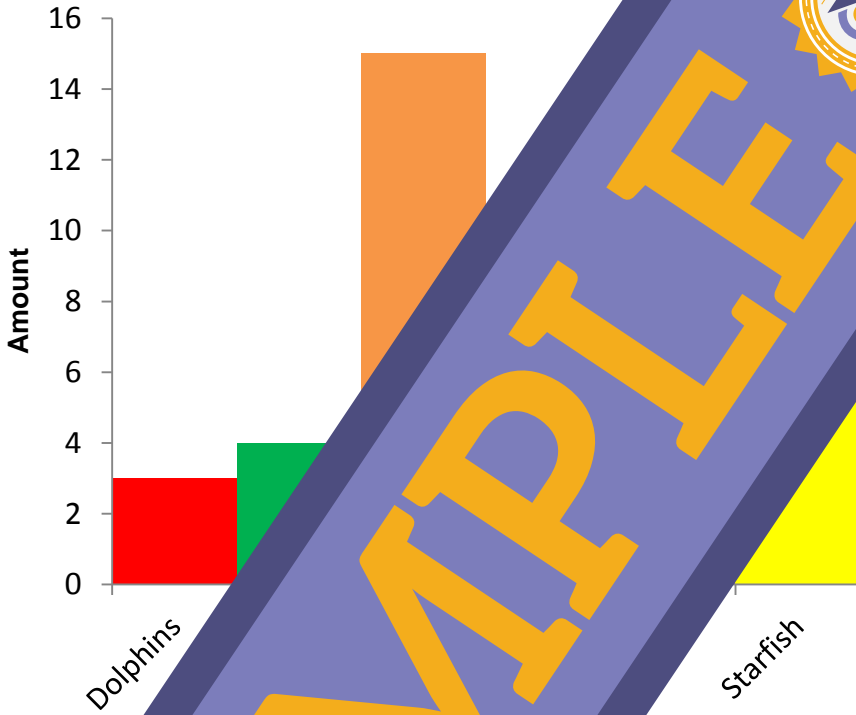


SAMPLE

This answer guide is continued on the next page...



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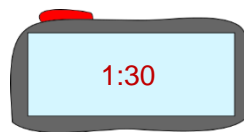
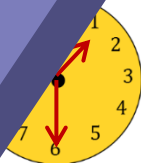


Ques

This ques... way timetable and answer a number of time
question

The... ask: 11am Monday, 3pm Wednesday, 11am Thursday,
1p

uesdays, as indicated by the unit starting halfway between 1
played this time on both an analogue and digital clock.



This answer guide is continued on the next page...

MIGHTY MINDS
Educational Consultants



...This answer guide is continued from the previous page.

The Sea Rescue Show runs for 1.5 hours.

Question Fourteen:

Based on their understanding of the size of angles under 90 degrees, identify which of four crocodiles' jaws formed an angle of 90 degrees.



Question Fifteen:

This item required students to identify the properties of a rectangular prism and answer questions about their properties.

Model Response:

Shape 1

M

Sh



Shape: Rectangular prism

Faces: 6

Edges: 12



This answer guide is continued on the next page...

...This answer guide is continued from the previous page.

Question Sixteen:

Students should have been able to work out the area of a grid either using multiplication or simply by counting the squares.

Model Response:

$$6 \times 6 = 36m^2$$

Question Seventeen:

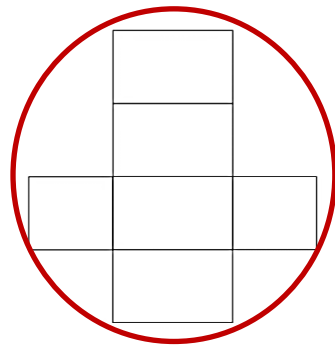
Here, students were asked to examine a grid and identify the area of it.

Model Response:



Question

After being shown a prism-shaped box, students were asked to identify its corresponding net.



This answer guide is continued on the next page...



...This answer guide is continued from the previous page.

Question Nineteen:

This item required students to interpret a map and answer a language of direction.

Starfish Street is parallel to Dolphin Avenue, parallel meeting.

Great White Boulevard is perpendicular to Dolphin Avenue, crossing a crossroads with at a 90° angle.

The Gold Coaster is east of Rowboat River, located at the compass point in the bottom left-hand corner of the page.

Question Twenty:

After being shown a compound 3D shape, students were asked to identify it from a rotated aerial view.

