

Independent Study Pack 7.5



Please work through this booklet so that it can be marked and feedback given.

- ✓ Use your own workbook to complete the tasks.
- ✓ Use the booklet to complete the tasks.

Name

VMG

Reading

Read the text carefully and answer the questions below in full sentences.

Chocolate

Chocolate — there's nothing quite like it, is there? Chocolate is simply delicious. What is chocolate? Where does it come from?

Christopher Columbus was probably the first to take cacao beans from the New World to Europe in around 1502. But the history of chocolate goes back at least 4,000 years! The Aztecs, who lived in America, thought that their bitter cacao drink was a divine gift from heaven. In fact, the scientist Carolus Linnaeus named the plant Theobroma, which means "food of the gods."

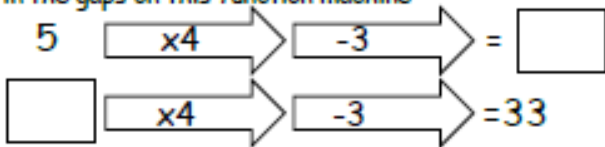

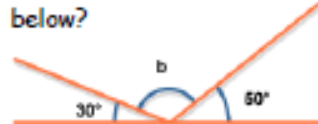
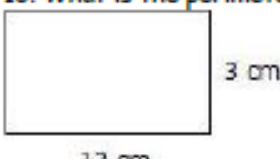
The Spanish explorer Hernando Cortez went to America in 1519. He visited the Mexican emperor Montezuma. He saw that Montezuma drank cacao mixed with vanilla and spices. Cortez took some cacao home as a gift to the Spanish King Charles. In Spain, people began to drink Cortez's chocolate in a drink with chili peppers. However, the natural taste of cacao was too bitter for most people. To sweeten the drink, Europeans added sugar to the cacao drink. As a sweet drink, it became more popular. By the 17th century, rich people in Europe were drinking it.

Later, people started using chocolate in pastries, like pies and cakes. In 1828, Dutch chocolate makers started using a new process for removing the fat from cacao beans, and getting to the center of the cacao bean. The Dutch chocolate maker Conrad J. van Houten made a machine that pressed the fat from the bean. The resulting powder mixed better with water than cacao did. Now, some call van Houten's chocolate "Dutch chocolate."

It was easy to mix Dutch chocolate powder with sugar. So other chocolate makers started trying new recipes that used powdered chocolate. People started mixing sweetened chocolate with cocoa butter to make solid chocolate bars. In 1849, an English chocolate maker made the first chocolate bar. In the

19th century, the Swiss started making milk chocolate by mixing powdered milk with sweetened chocolate. Milk chocolate has not changed much since this process was invented.

Maths

<p>1. Calculate $2 + 6 \div 3 =$</p>	<p>2. Fill in the gaps on this function machine</p> 																
<p>3. If the ratio of gold coins to silver coins is 1:4, how many silver coins would I have if I had 3 gold coins?</p>	<p>4. What is the area of the following shape?</p> 																
<p>5. If I have 15 flowers and 5 are red, what is the probability of me not choosing a red flower?</p>	<p>6. What is the median of the following set of numbers? 2, 3, 4, 6, 7, 7, 9</p>																
<p>7. Circle the prime numbers from the list below: 2, 17, 27, 63, 77, 97</p>	<p>8. What is the term to term rule of the following sequence? 23, 18, 13, 8, 3, -2</p>																
<p>9. If I need 40g of flour to make 12 breadsticks, how much flour would I need to make 18 breadsticks?</p>	<p>10. What is the size of the missing angle in the diagram below?</p> 																
<p>11. Find the range for the following set of numbers: 12, 15, 15, 16, 19, 21, 25</p>	<p>12. Complete the two way table below. What is the probability a person selected at random liked both star wars and titanic?</p> <table border="1" data-bbox="798 1075 1212 1288"> <thead> <tr> <th>ANSWER</th> <th>Like "Titanic"</th> <th>Dislike "Titanic"</th> <th>Totals</th> </tr> </thead> <tbody> <tr> <th>Like "Star Wars"</th> <td>70</td> <td></td> <td></td> </tr> <tr> <th>Dislike "Star Wars"</th> <td>50</td> <td>50</td> <td></td> </tr> <tr> <th>Totals</th> <td></td> <td></td> <td>200</td> </tr> </tbody> </table>	ANSWER	Like "Titanic"	Dislike "Titanic"	Totals	Like "Star Wars"	70			Dislike "Star Wars"	50	50		Totals			200
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<p>13. Write the following fractions in order from smallest to largest: $\frac{1}{5}$ $\frac{1}{2}$ $\frac{3}{10}$ $\frac{4}{5}$</p>	<p>14. Simplify $5e + 2f - 3e - 8f$</p>																
<p>15. What is the perimeter of the following shape</p> 	<p>16. Write down all the possibilities when rolling a fair six sided die, and flipping a fair coin.</p>																
<p>17. What is 30% of 120?</p>	<p>18. Write an expression for the total cost of 10 bracelets and 2 watches.</p>																
<p>19. How many millimetres are in 47cm</p>	<p>20. If the pictogram below represents peoples favourite sports, how many chose rugby?</p> <p>Sports Played by 3rd Graders</p> <table border="1" data-bbox="798 1881 1260 2072"> <tbody> <tr> <td>football</td> <td></td> </tr> <tr> <td>tennis</td> <td></td> </tr> <tr> <td>rugby</td> <td></td> </tr> </tbody> </table> <p>key = 10 students</p>	football		tennis		rugby											
football																	
tennis																	
rugby																	
<p>Total: /20</p>	<p>Personal Target:</p>																

NUMERACY NINJAS

5 MINUTE SKILL CHECK

WEEK 6 SESSION 3 - Answer as many questions as you can in 5 mins

MENTAL STRATEGIES -
do these in your head

TIMESTABLES -
do these in your head

KEY SKILLS - you may use written calculations
for these questions

Q	Question	Answer
1	$11 + \square = 20$	
2	What is double 34?	
3	$193 + 10$	
4	$140 - 50$	
5	$4 = 1 + \square$	
6	$19 - 11 = 19 - 9 - \square$	
7	$14 + 14 + 14 = \square \times 14$	
8	What is the time on the clock?	am
9	What is double 8?	
10	What is half of 72?	
Total out of 10		

Q	Question	Answer
1	$7 \times 4 = \square$	
2	$1 \div 1 = \square$	
3	$10 \times \square = 100$	
4	$90 \div \square = 10$	
5	$8 \times 8 = \square$	
6	$30 \div 5 = \square$	
7	$\square \times 10 = 10$	
8	$\square \div 8 = 7$	
9	$4 \times 9 = \square$	
10	$4 \div 4 = \square$	
Total out of 10		



Q	Question	Answer
1	What is the positive value of $\sqrt{16}$?	
2	$224 + 9070$	
3	$(7 + 1) \times 3$	
4	Write Four Hundred and Sixty Two in digits	
5	$59.742 \div 10$	
6	$(-7) \times (-4)$	
7	Round 0.9451 to 2 d.p.	
8	$2 + (-2)$	
9	Round 0.8243 to 3 s.f.	
10	Letter at $(-1, 1)$	
Total out of 10		



What's your **NINJA** Score?

Fill in your scores in the boxes
and calculate it now!

MENTAL
STRATEGIES:

TIMESTABLES:

KEY SKILLS:

 +

MY **NINJA** BELT:

NINJA SCORE:

WEEK 6 SESSION 4 - Answer as many questions as you can in 5 mins

MENTAL STRATEGIES -
do these in your head

TIMESTABLES -
do these in your head

KEY SKILLS - you may use written calculations
for these questions

Q	Question	Answer
1	$\square + 17 = 20$	
2	Double 66	
3	$95 + 10$	
4	$25 - 20$	
5	$6 = 4 + \square$	
6	$66 - 10 = 66 - 6 - \square$	
7	$9 = 9 \times \square$	
8	What is the time on the clock?	pm
9	Double 5	
10	What is half of 59?	
Total out of 10		

Q	Question	Answer
1	$4 \times 3 = \square$	
2	$12 \div 4 = \square$	
3	$5 \times \square = 25$	
4	$10 \div \square = 2$	
5	$4 \times 7 = \square$	
6	$14 \div 2 = \square$	
7	$\square \times 8 = 80$	
8	$\square \div 1 = 3$	
9	$5 \times 6 = \square$	
10	$18 \div 2 = \square$	
Total out of 10		



Q	Question	Answer
1	What is the positive value of $\sqrt{25}$?	
2	$1668 + 2809$	
3	$(10 - 10)^2 + 3 \times 2$	
4	Write Ten Thousand, Nine Hundred in digits	
5	$62.487 \div 1000$	
6	$2 \times (-7)$	
7	Round 45.4952 to 3 d.p.	
8	$(-4) + (-3)$	
9	Round 0.002734 to 3 s.f.	
10	Letter at (2, -2)	
Total out of 10		



What's your **NINJA** Score?

Fill in your scores in the boxes and calculate it now!

MENTAL STRATEGIES:

TIMESTABLES:

KEY SKILLS:

 +

MY **NINJA** BELT:

NINJA SCORE:

Science: Courtship

Wild animals are often quite aggressive towards each other. This could be a problem if they are of the opposite sex and they are to mate!

Courtship is important for four main reasons:

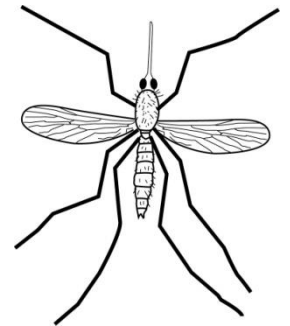
- Members of the opposite sex can approach each other, get close and not be aggressive.
- They are able to recognise other individuals of the same species.
- They can begin to make a decision about choosing a healthy and strong mate.
- It helps the male and the female to be 'in the mood' at the same time – to synchronise their behaviour.

Animals use a variety of courtship methods. Here are some examples.

Making sounds

Reed warblers live in dense reed beds. Like many other British birds, the male's song attracts the female. The song lets her know that there is a male close by keen to mate.

Male mosquitoes beat their wings hundreds of times per minute. This makes a buzzing sound that attracts females. When they are together they will mate and she will then lay hundreds of eggs that will develop into more mosquitoes – not so nice for us!



Creating a smell

The female gypsy moth produces a special scent which will attract males up to five kilometres away!

Many female mammals, like the water buck that lives in Africa, produce a nice smell when they are ready to mate. This smell attracts males.

Special displays

The Indian peacock displays its beautiful tail. The Congo peacock does not have such an impressive tail so he uses his wings to attract a mate.

Birds of paradise also use their wings to impress females in the hope that they will mate with one of them.

Attractive movements

Scorpions will do a special 'mating dance'. The male will shed a sperm packet which the female will use to fertilise her eggs.

The male Siamese fighting fish will build a nest and then swim around a female to attract her. He will bump into her, and even bite her, until she responds to him.

1 Why do you think that animals are aggressive towards each other?

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2 Explain why courtship is useful.

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3 What are the four ways in which different animals attract a mate?

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4 How does a female gypsy moth attract males?

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5 Why do reed warblers sing to attract a mate, rather than display?

.....

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6 Complete the table below by finding another example for each method of courtship.

Courtship method	Another example
Making sounds	
Creating a smell	
Making a display	
Attractive movements	

Frog reproduction

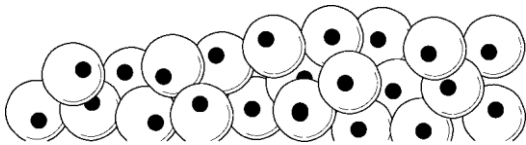
Most frogs normally reproduce in May and June. You can sometimes hear them 'croaking' at this time. Only the males croak and they do this to attract females. Each male frog finds an area (called a territory) on the bank of a pond. The male frogs will fight any other frogs that come into their areas.

Each different sort (species) of frog has its own croak and so females are only attracted to males of the same species. In bullfrogs, the females are most attracted to the bullfrog males with the deepest croaks.

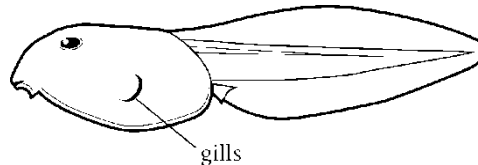
When a female frog of the right species has come into a male frog's territory, the male doesn't mess around! He leaps onto her back and holds on very tightly. The two frogs go into the water and the female releases her egg cells. As she does this the male releases sperm cells onto them. The egg cells are then fertilised by the sperm cells.

The fertilised egg cells then grow into embryos. The egg cells have a jelly coating on them. This provides a source of food for the developing embryo. After two or three weeks the tiny tadpoles break out of the jelly coat. The tadpoles have gills to take oxygen out of the water. They feed on tiny plants.

Over a period of months, the tadpoles grow. They then lose their tails and gills and change into frogs. Adult frogs eat insects and breathe using lungs.



Fertilised frog egg cells are often called frog spawn.



A tadpole.

1 Write down four key points about frog reproduction. You should write four short sentences only.

2 a What happens during fertilisation?

b Do frogs use external or internal fertilisation?

- 3** How do frogs make sure that they attract female frogs of the same species?

- 4** What is a lump of fertilised frog egg cells often called?

- 5** Write down one way in which frog reproduction is similar to human reproduction.

- 6** Write down one way in which frog reproduction is different to human reproduction.

- 7** Female frogs often release hundreds or thousands of eggs into the water. Suggest two reasons why less than half of these ever turn into tadpoles.