

Independent Study Pack 11.4



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

Maths:

Complete 1 hour on Hegarty maths. Your teacher will be able to see what you have completed and give you feedback.

This extract is from the opening of the novel *Jurassic Park* by Michael Crichton. It was written in 1990. In this section, Roberta Carter, an American doctor stationed in Costa Rica, is disturbed by the arrival of a helicopter.

The tropical rain fell in drenching sheets, hammering the corrugated roof of the clinic building, roaring down the metal gutters, splashing on the ground in a torrent. Roberta Carter sighed, and stared out the window. From the clinic, she could hardly see the beach or the ocean beyond, cloaked in low fog. This wasn't what she had expected when she had come to the fishing village of Bahía Anasco, on the west coast of Costa Rica, to spend two months as a visiting physician. Bobbie Carter had expected sun and relaxation, after two gruelling years of residency in emergency medicine at Michael Reese in Chicago.

She had been in Bahía Anasco now for three weeks. And it had rained every day.

Everything else was fine. She liked the isolation of Bahía Anasco, and the friendliness of its people. Costa Rica had one of the twenty best medical systems in the world, and even in this remote coastal village, the clinic was well maintained, amply supplied. Her paramedic, Manuel Aragón, was intelligent and well trained. Bobbie was able to practice a level of medicine equal to what she had practiced in Chicago.

But the rain! The constant, unending rain!

Across the examining room, Manuel cocked his head. "Listen," he said.

"Believe me, I hear it," Bobbie said. "No. Listen."

And then she caught it, another sound blended with the rain, a deeper rumble that built and emerged until it was clear: the rhythmic thumping of a helicopter. She thought, They can't be flying in weather like this.

But the sound built steadily, and then the helicopter burst low through the ocean fog and roared overhead, circled, and came back. She saw the helicopter swing back over the water, near the fishing boats, then ease sideways to the rickety wooden dock, and back to ward the beach.

It was looking for a place to land.

It was a big-bellied Sikorsky with a blue stripe on the side, with the words "InGen Construction." That was the name of the construction company building a new resort on one of the offshore islands. The resort was said to be spectacular, and very complicated; many of the local people were employed in the construction, which had been going on for more than two years. Bobbie could imagine it — one of those huge American resorts with swimming pools and tennis courts, where guests could play and drink their daiquiris, without having any contact with the real life of the country.

Bobbie wondered what was so urgent on that island that the helicopter would fly in this weather. Through the windshield she saw the pilot exhale in relief as the helicopter settled onto the wet sand of the beach. Uniformed men jumped out, and flung open the big side door. She heard frantic

shouts in Spanish, and Manuel nudged her.

They were calling for a doctor.

Checking understanding

Circle the correct answers.

1. On line 2, the writer uses the noun **torrent**. Which definition best matches the word in this context?

[a] a fast-moving stream of water	[b] an angry outburst	[c] an item borrowed from someone else	[d] a puddle
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2. On line 6, the writer uses the noun **physician**. Which definition best matches the word?

[a] a personal trainer	[b] a scientist	[c] a doctor	[d] a nurse
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3. On line 7, the writer uses the adjective **gruelling**. Which definition best matches the word?

[a] poor	[b] extremely tiring and demanding	[c] unpleasant	[d] exciting
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4. On line 12, the writer uses the adjective **amply**. Which definition best matches the word?

[a] not enough	[b] just enough	[c] more than enough	[d] enough
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5. It is set in a tropical location.

True	False
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6. The clinic is not fit for purpose.

True	False
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7. The clinic is in an expensive resort.

True	False
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Improving analysis

The following are extracts from the text. Decide which analysis of the extract is the best one.

8. ...hammering the corrugated roof...

The verb 'hammering' implies that the rain is damaging the roof as it is falling so hard and fast; it is as if the rain is punishing the roof for some reason.	The verb 'hammering' sounds violent and aggressive, which makes the environment around the clinic seem hostile and frightening.	The verb 'hammering' suggests how loudly the rain is falling which suggests it is very difficult for Roberta to do her job properly.
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9. ... the helicopter burst through the ocean fog.

The verb 'burst' not only suggests that the helicopter moves suddenly, but also that it is in some way aggressive and disturbing to watch.	The verb 'burst' makes the helicopter seem like a surprise to Roberta, which suggests she is shocked.	The verb 'burst' suggests that the helicopter has been hidden and is now breaking free like a wild animal.
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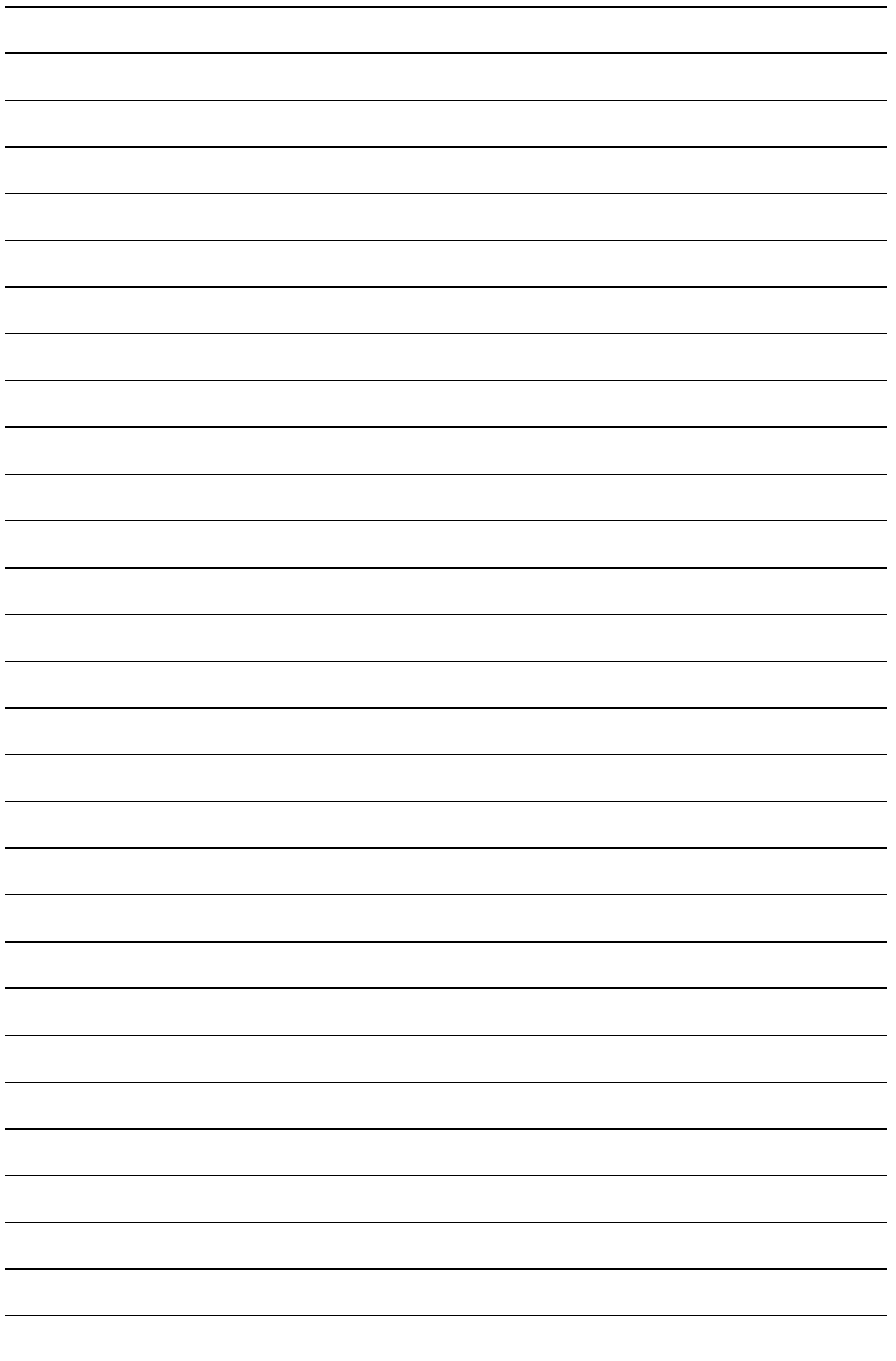
10. They were calling for a doctor.

The short sentence which concludes this extract implies that something awful has happened, and also suggests that Roberta will be directly involved in the ongoing action.	This short sentence creates tension as they want some medical help.	This short sentence, which concludes the extract, creates tension as the reader does not know why they want a doctor and they want to read on to find out.
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Writing task: Write the opening of a story entitled 'The Unexpected Arrival'.

You must:

- Use pathetic fallacy to foreshadow the surprise
- Use dialogue to express surprise
- Have a clear change in tone to highlight the surprise

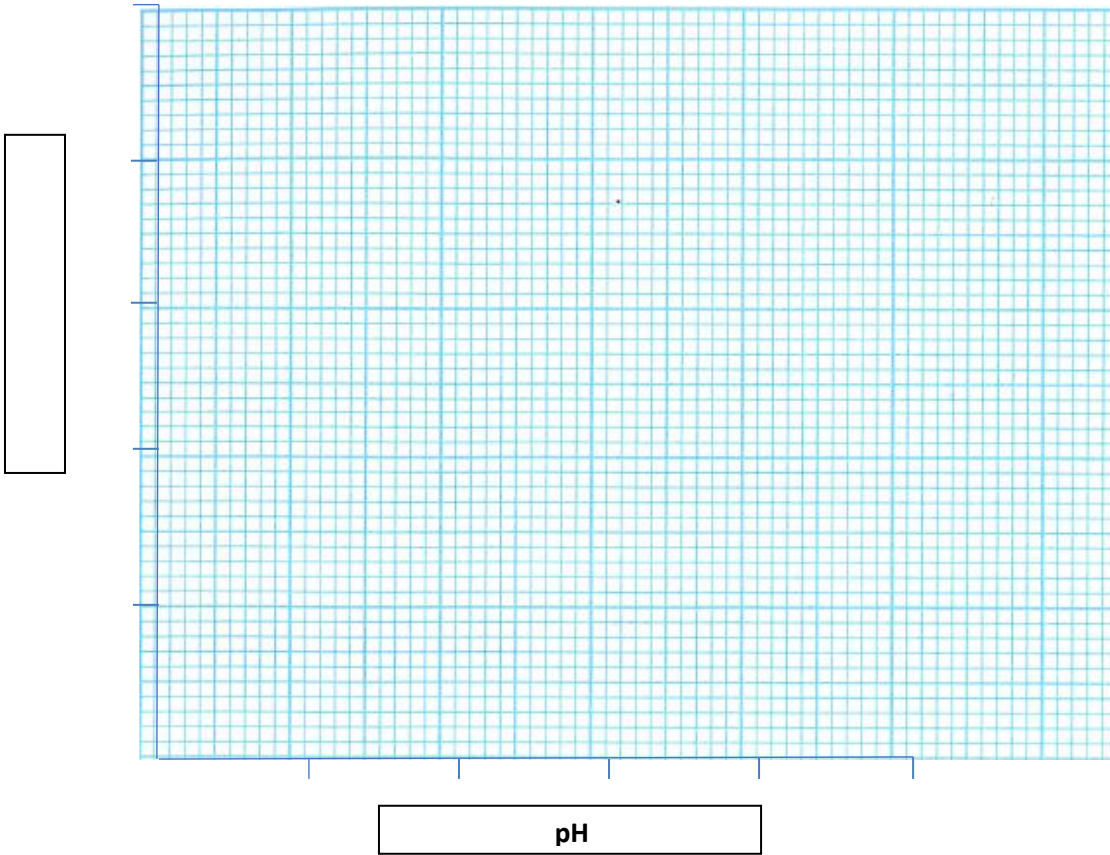


Enzymes help to break down food. Amylase is an enzyme that breaks down starch. There is an optimum pH at which enzymes work best. Below or above this pH, the enzyme may slow down or not work at all. If the shape of the active site is destroyed the enzyme will not work and we say it has been denatured.

Hypothesis: There is a link between the pH and the rate of starch breakdown (mg/min).

Task 1: Use the data in the table to plot a graph.

pH	Rate of starch breakdown (mg/min)
4	0
5	2
6	3
7	6
8	10
9	5
10	1



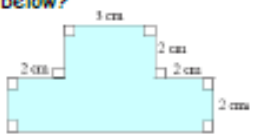
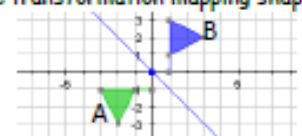
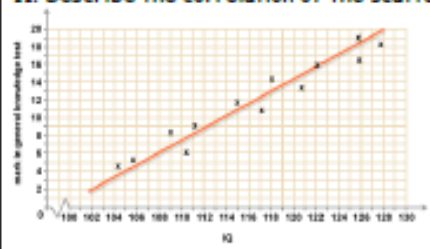
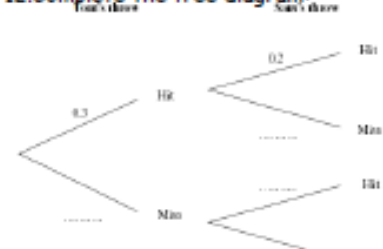
Task 2: Do your results support the hypothesis that you have been given?
You should use any pattern that you can see in your results to support your answer.
You should include examples from your results. (3 marks)


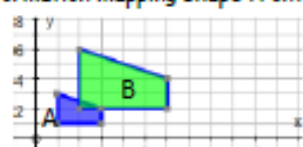
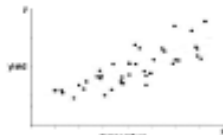
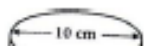
My results do/do not support the hypothesis investigated.

The rate of starch breakdown _____ as pH increases, up to __, which is the optimum pH.

Beyond this pH, the rate of starch breakdown _____ as pH increases.

Maths:

<p>1. Round 7.4521 to 2 significant figures.</p>	<p>2. Expand $4(2x - 3)$</p>
<p>3. A recipe requires sugar, flour and cocoa in the ratio 5 : 4 : 1. If the total weight of the mixture is 550g, what weight of each ingredient is used?</p>	<p>4. What is the area of the shape below?</p> 
<p>5. The probability of a biased coin landing on heads is 0.35. I flip the coin 200 times, how many times would the coin land on heads?</p>	<p>6. Compare the median and range of the two sets of data below: Set A: 34, 56, 44, 28, 67, 93 Set B: 62, 58, 56, 68, 70, 58</p>
<p>7. Work out $7/8 \div 1^2/3$</p>	<p>8. If $a=8$, $b=6$ and $c=2$, what is the value of: $\frac{2ac}{b}$</p>
<p>9. The exchange rate from Pounds Sterling to Australian Dollars is £1 = \$1.82. How many pounds should I get back for \$300?</p>	<p>10. Describe the transformation mapping shape A to shape B.</p> 
<p>11. Describe the correlation of the scatter graph.</p> 	<p>12. Complete the tree diagram:</p> 

<p>1. Estimate the following:</p> $\frac{3.5 \times 37.89}{1.8 + 2.21}$	<p>2. Factorise the following expression: $3x^2 + 15xy$</p>				
<p>3. Alan and George receive some money in the ratio 2:5. The total received was €490, how much did George get?</p>	<p>4. What is the area of the following shape?</p> 				
<p>5. If the probability of picking a red rose from a garden is 0.45, how many of the next 360 flowers picked would be red?</p>	<p>6. Compare the median and range of the test scores below from two classes. Class A: 45, 55, 48, 62, 85, 81, 42 Class B: 32, 36, 56, 66, 68, 81, 90</p>				
<p>7. Work out $4\frac{1}{2} \times \frac{3}{4}$</p>	<p>8. If $c = 20$, $d = 4.5$ and $e = 60$, calculate $\frac{4cd}{e} =$</p>				
<p>9. Carol spends 17 hours in a 2-week period practicing her culinary skills. How many hours does she practice in 5 weeks?</p>	<p>10. Describe the transformation mapping shape A onto Shape B below.</p> 				
<p>11. Draw a line of best fit on the scatter graph below.</p> 	<p>12. Use a tree diagram to find the probability of tossing a head first and then a tail when a coin is tossed twice.</p>				
<p>13. Write $6b^3 \times 2ab$ as a single term</p>	<p>14. Solve the following inequality $3x - 3 > 15$</p>				
<p>15. What is the volume of the cylinder below?</p> 	<p>16. Use the table to find the mean number of goals Trig FC scores each game</p> <table border="1" data-bbox="821 2206 1324 2240"> <thead> <tr> <th>Number of goals</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table>	Number of goals	Frequency		
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