Reasoning and Problem Solving
Statistics Consolidation – Year 5

National Curriculum Objectives

Mathematics Year 5: **Solve comparison, sum and difference problems using information presented in a line graph**

Mathematics Year 5: **Complete, read and interpret information in tables, including timetables**

About This Resource

This resource is aimed at Year 5 Expected and has been designed to give children the opportunity to consolidate the skills they have learned in Autumn Block 3 – Statistics.

The questions are based on a selection of the same 'small steps' that are addressed in the block, but are presented in a different way so children can work through the pack independently and demonstrate their understanding and skills.

Small Steps

Read and interpret line graphs
Use line graphs to solve problems
Read and interpret tables
Two way tables
Timetables

More **Year 5 Statistics** resources.

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The Johnson family are looking forward to a trip to Scarborough beach. Mr Johnson knows how important it is to check the tide times before they plan their trip, to make sure they can get as much time on the beach during the day as possible without the tide being in.

1a. Look at the table below, which two days would give the Johnson family the most time at the beach? H = High tide, L = Low tide

Day	Date	Time		Height	Time		Height	Time		Height	Time		Height
Sat	9th	02:53	H	7.2	08:09	L	3.3	13:57	H	8.1	20:35	L	- 0.1
Sun	10th	03:29	H	7.2	08:51	L	3.1	14:41	H	7.8	21:11	L	0.2
Mon	11th	04:04	H	7.3	09:39	L	3	15:32	H	7.3	21:51	L	0.6
Tue	12th	04:48	H	7.4	10:37	L	2.8	16:34	H	6.7	22:38	L	1.2
Wed	13th	05:35	H	7.6	11:46	L	2.5	17:48	H	6.1	23:34	L	1.8
Thurs	14th	06:28	H	7.8	13:01	L	2	19:12	H	5.8			
Fri	15th	00:40	L	2.4	07:25	H	8.2	14:13	L	1.3	20:34	H	5.9
Sat	16th	01:49	L	2.8	08:23	H	8.5	15:17	L	0.5	21:47	H	6.3
Sun	17th	02:55	L	3	09:19	H	8.9	16:15	L	- 0.2	22:49	H	6.8
Mon	18th	03:56	L	3	10:14	H	9.2	17:09	L	- 0.8	23:44	H	7.2
Tue	19th	04:54	L	2.9	11:06	H	9.4	17:58	L	-1.1			
Wed	20th	00:35	H	7.6	05:49	L	2.8	11:56	H	9.3	18:45	L	- 1.2
Thurs	21st	01:22	H	7.8	06:41	L	2.7	12:44	H	9.1	19:29	L	- 1

The Johnson family can only go to the beach at the weekend and it will take approximately 3 hours to get to the beach in the car. They are hoping to set off from home at 08:00. The children's bedtimes are between 7pm and 8pm.
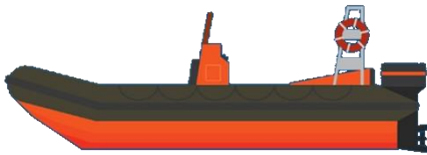**1b. Which is the best day to go? Explain how you know.**

Beach day is finally here and all the toys, towels and picnic are packed in the car ready for the trip to Scarborough. Sam and Lydia are very excited and can't wait to get on their way to the beach.

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Consolidation Pack – Year 5 – Expected

Yippee, they finally arrive at Scarborough and Sam and Lydia can see the golden sand. They are so excited to start making sandcastles in the sunshine.
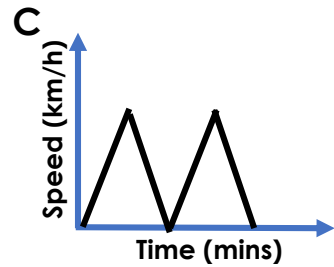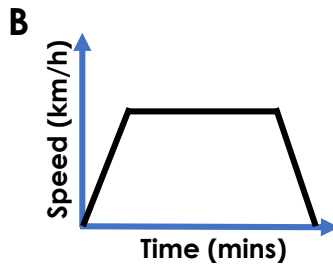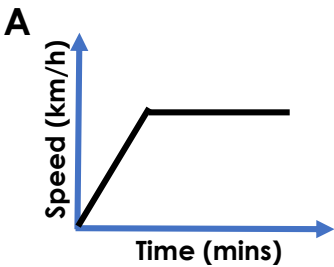
After a while making sandcastles, Sam is eager to have a go in the dinghy as the sea is calm. Dad reminds them to be careful and stay close to the shore.

It isn't long before Mum hears Lydia shouting. "MUM, MUM, look where Sam is!!"
A gust of wind had blown Sam further out from the shore. Quick-thinking mum phones 999 and asks for the Coastguard. She explains the situation and they say they will send the local lifeboat. Mum and Dad go to the shoreline to keep Sam calm until help arrives.

The lifeboat launches from the local station and makes its way, at full speed, to the dinghy with Sam aboard. When they spot the dinghy, they come to a stop making sure Sam is safe.

2. Which line graph below shows the lifeboat's journey to Sam?

A

Speed (km/h)

Time (mins)

B

Speed (km/h)

Time (mins)

C

Speed (km/h)

Time (mins)

The lifeboat takes Sam back to the beach where the rest of the family are pleased to see him. Thank goodness he is safe. The children stick to playing on the beach for the rest of the day, staying away from the sea.

All the way home, Sam asks lots of questions about the lifeboat and the people that came to rescue him.

"Dad, is that their job? Do they rescue lots of people? Do they only rescue children? Do only men rescue people?"

There were so many questions. Sam decided to find out as much information as he could about the lifeboat once he got home.

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The first thing Sam wanted to find out was about the people who work, rescuing people, for the lifeboats in Scarborough. Help Sam complete the table below to find the missing information.
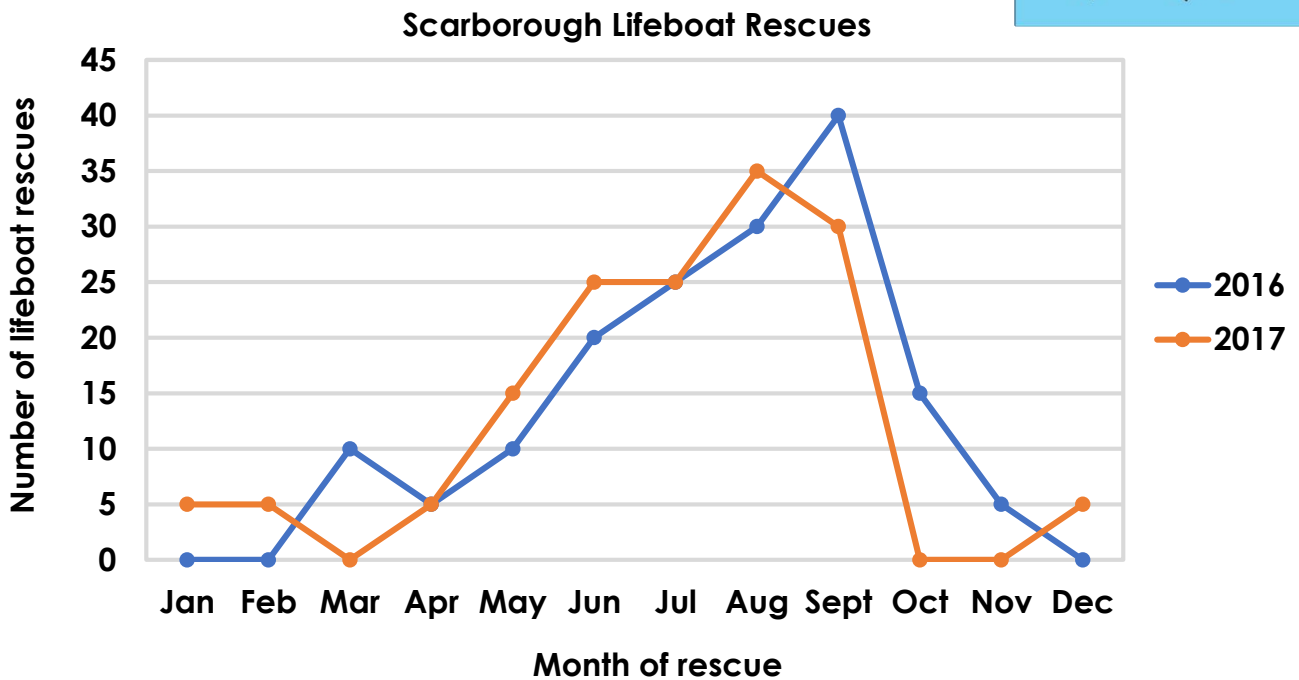
3.

	Coxswain	Mechanic	Crew	Total
Men	2			35
Women	1		8	
Total		9	34	

Now Sam knows who works at the Scarborough station, he wants to find out how many people they have rescued over the year.

4. Use the line graph to help Sam find the answers to his questions.

Scarborough Lifeboat Rescues
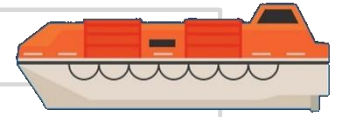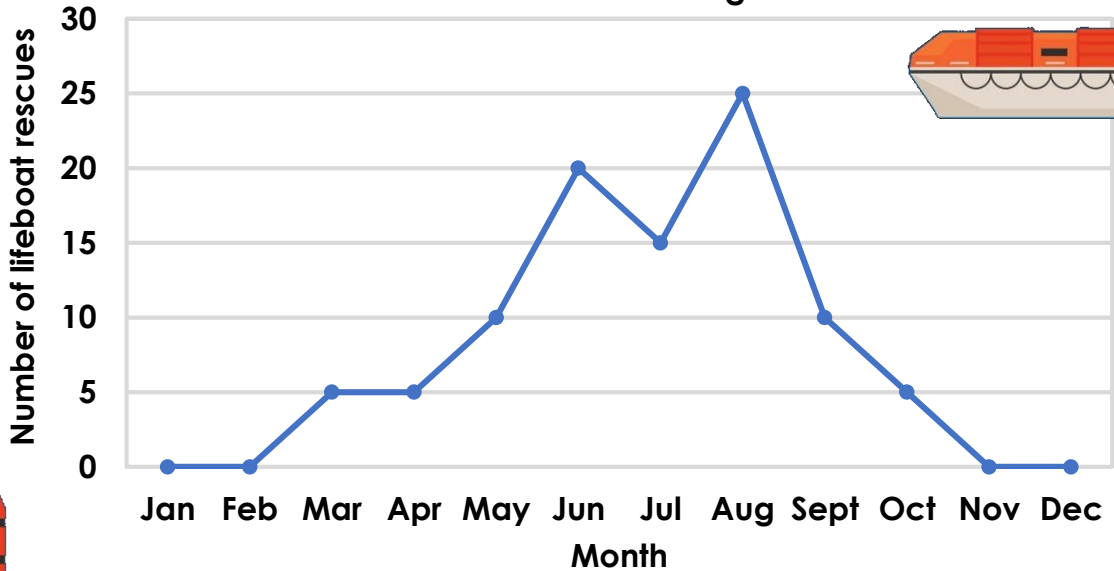
4a. Is one month busier than the rest?

4b. Do they rescue more people every year?

4c. What is the difference, in each year, between May and July?

4d. How many rescues were there in total, in July and August?

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Wow! Sam is amazed how many people are rescued every year by the lifeboat just at Scarborough. He talks to his dad and is surprised to hear that lifeboats were in action when he was a boy too. Sam decides to find out how busy Scarborough lifeboat station was in the past. He plots what he finds on a line graph.

Lifeboat recues at Scarborough in 1980

5. What was the information that Sam used to plot the graph?

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1980												

Sam has spent lots of time finding out about the lifeboats that Dad has decided to treat him to a surprise trip to visit the lifeboat station at Scarborough to meet some of the people who save lives. They are going to go on the train and Dad has arranged to be at the lifeboat station for 10:30am.

Leeds	08:08	09:01	09:13	09:19	09: 35	09:51
York	08:25	09:25	09:40	09:55	10:01	10:10
Seamer	09:15	09:54	10:18	10:23	10:46	10:58
Scarborough	09:25	10:00	10:25	10:31	10:51	11:06

6. Which is the latest train that Sam and his dad could catch from York?

Dad waits till the morning and than shares the surprise with Sam. He is so excited and can't wait to the get the lifeboat station to meet the people and find out more about all the equipment they use.

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Consolidation Pack – Year 5 – Expected

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Thurs	21st	01:22	H	7.8	06:41	L	2.7	12:44	H	9.1	19:29	L	- 1

1a. Sunday 17th would give the family 6 hours and 56 minutes at the beach and Monday 18th would give them 6 hours and 55 minutes at the beach.

1b. Sunday 17th would be best because they could be at the beach from 11am -16:15 which would be 5 hours and 15 minutes and still return home in time for the children's bedtimes.

2. Graph B shows the lifeboat getting up to full speed, travelling at full speed and coming to a stop at Sam's dinghy.

3. Various answers. One example of how the table could be completed is shown below.

	Coxswain	Mechanic	Crew	Total
Men	2	7	26	35
Women	1	2	8	11
Total	3	9	34	46

4. a. Is one month busier than the rest?

September

b. Do they rescue more people every year?

No. In 2016: 160 rescues and in 2017: 150 rescues

c. What is the difference, in each year, between May and July?

In 2016: 15 and in 2017: 10

d. How many rescues were there in total, in July and August?

115

5.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1980	0	0	5	5	10	20	15	25	10	5	0	0

6. The latest train that Sam and his dad could catch would be the 09:40 from York.

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