

UKS2

Festivals and celebrations maths challenges

TEACHING
PACK



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INTRODUCTION

The lessons in this pack are designed to support year 6 National Curriculum maths outcomes and prepare pupils for KS2 SATs. Lessons assume prior experience of each of these strands and do not aim to introduce concepts but to recap, practise and consolidate them in a real life, topical context.

Each lesson relates to a particular festival or celebration and explores a different strand of the year 6 maths programme of study (building on year 5). Lessons come with a lesson plan, a PowerPoint (for whole-class teaching) and a problem-solving worksheet.

The lesson plan includes starter questions, a main teaching activity, a worksheet for independent learning and a plenary. Answers for the starter questions, for questions within the main teaching activity and for the plenary are featured within the lesson plan or on the PowerPoint in red. (Click to reveal the answers on the PowerPoint slides.) Worksheet answers are featured at the end of the relevant section.

The pack reflects the order each festival takes place in the academic year, but the lessons are stand-alone and can be taught in any order at any time.

We hope you enjoy using this pack. If you have any questions, please get in touch: email support@teachit.co.uk or call us on 01225 788851.



HANUKKAH

- statistics

Year 5 statutory requirements

Pupils should be taught to:

- solve comparison, sum and difference problems using information presented in a line graph
- complete, read and interpret information in tables, including timetables.

Year 6 statutory requirements

Pupils should be taught to:

- interpret and construct pie charts and line graphs and use these to solve problems
- calculate and interpret the mean as an average.

Context

Hanukkah commemorates the miracle that happened over 2200 years ago in a temple in Jerusalem. A Greek army had invaded and attacked the temple, destroying the sacred lamp that had burnt there day and night. A family of Jews called the Maccabees fought back and defeated the Greek army. When they attempted to relight the lamp, they found only enough oil to keep it burning for one night. They needed eight nights to make more oil for the lamp, but a miracle happened. The lamp kept burning for eight nights. Now Jewish people celebrate this miracle with their festival of light: Hanukkah.

Starter questions

Get children's brains warmed up by asking, '*Hanukkah is celebrated for eight days and nights. How many hours is this altogether?*'

$$8 \times 24 = 192$$

If the oil had only lasted for 91 hours, after how many days and nights would the lamp have gone out?

Four days and nights

If the lamp had gone out three quarters of the way through the eight days, for how many hours would there have been darkness?

$\frac{3}{4}$ of 8 = 6, so $8 - 6 = 2$, $2 \times 24 = 48$. There would have been 48 hours of darkness.

Main teaching activity (slides 24-27)**Display slide 24 - pie charts**

Sweet treats are often made to celebrate Hanukkah. Can children use the pie chart to calculate the number of people who like each treat?

Display slide 25 - tables

Can children complete the table using the information provided?

Display slide 26 - bar charts

Children should answer the questions using the data on the bar chart.

Display slide 27 - line graphs

Can children interpret the line graph to answer the questions?

Independent work

Hand out copies of the Hanukkah problem solving worksheet for children to complete independently.

Plenary questions

Ask children to work in pairs to solve the following problems.

8 children compared the amount of money they were given as presents for Hanukkah.

£10, £10, £10, £15, £20, £20, £25, £30

Find the mean of the figures.

$10 + 10 + 10 + 15 + 20 + 20 + 25 + 30 = 140$. Divide this number by 8 to find the mean $£140 \div 8 = £17.50$

Traditionally, the minimum length of time the Hanukkah candle should burn for each night of the festival is 30 minutes. Solomon and his mum lit the candles in their menorah for each night of Hanukkah. Solomon timed how long they were lit for with his stopwatch. Here are his timings over the eight nights of Hanukkah. Find the mean length of time the candles were lit from this set of values.

34, 48, 63, 55, 46, 51, 44, 75

$34 + 48 + 63 + 55 + 46 + 51 + 44 + 75 = 416$. We then divide this total by the number of values, in this case 8. $409 \div 8 = 52$ minutes



Name: Date:

HANUKKAH

Problem solving

Bobbie and Sam need to go by bus to get to a Hanukkah party. They use the bus timetable below:

Bus stop						
Cedar Road	8:30	9:10	9:50	10:30	11:10	11:50
Oak Avenue	8:42	9:22	10:02	10:42	11:22	12:02
Town Hall	9:01	9:41	10:21	11:01	11:41	12:21
Temple Street	9:08	9:48	10:28	11:08	11:48	12:28

1. Bobbie needs to be at Temple Street before 11. What is the latest bus she can get from Oak Avenue?

.....

2. Sam walks to the Cedar Road stop and gets there at 9.15 to catch the bus. What is the earliest she can get to the Town Hall?

.....

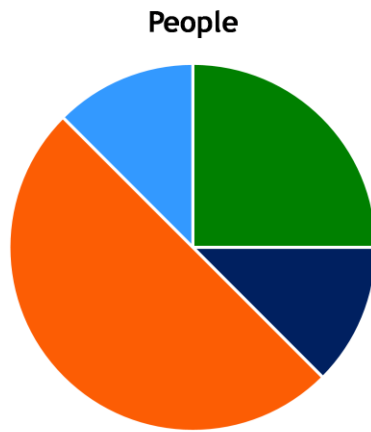
3. How long does it take Sam to get to the Town Hall?

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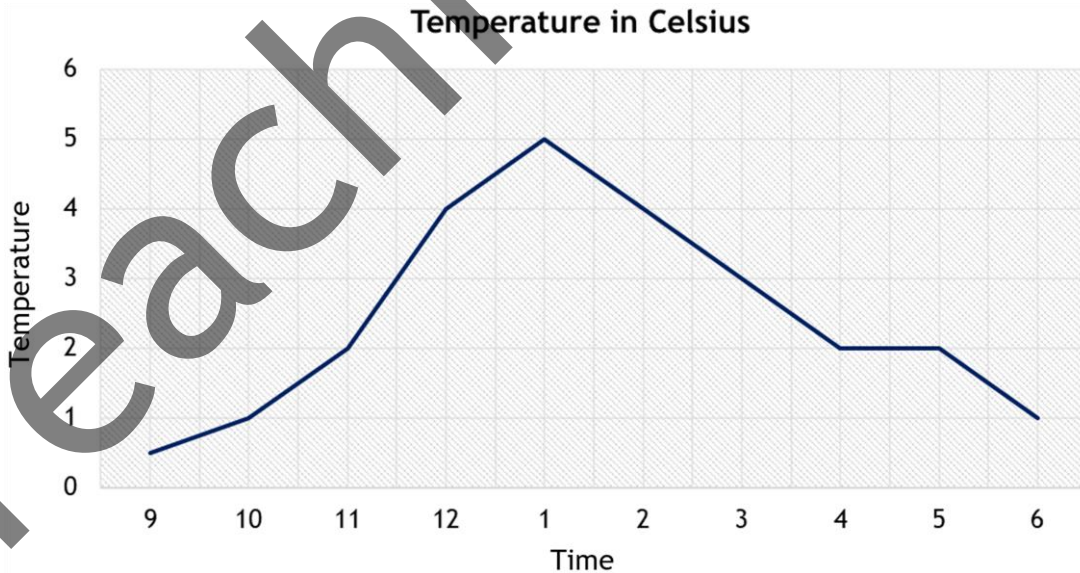
48 people are asked what their favourite part of Hanukkah is.



- Lighting the menorah
- Singing Hanukkah songs
- Eating latkes and doughnuts
- Playing dreidel

4. How many people like eating latkes and doughnuts?
5. How many more people like lighting the menorah than playing dreidel?
6. How many people like to sing Hanukkah songs?

It was a very cold day on the first day of Hanukkah. The change of temperature across the day on each hour is shown by the following line graph:



7. What was the highest temperature during the day?
8. The first candle of the menorah was lit at 5pm. What temperature was it then?
.....





9. How much did the temperature change between 2pm and 6pm? Did it fall or rise?

.....

10. The temperature rose from 2° to 4° at one point. When was this?

11. Using the temperature graph above, find the mean of the temperatures from 10am to 4pm.

.....

12. Clive collected all the ages of everyone at the Hanukkah party, but he missed one person. If the mean is 23, what is the missing age in the figures below?

2, 5, 5, 6, 6, 6, ?, 12, 13, 36, 42, 21, 76, 85

.....

Teachit sample





HANUKKAH

Problem solving

Answers

Bobbie and Sam need to go by bus to get to a Hanukkah party. They use the bus timetable below:

Bus stop						
Cedar Road	8:30	9:10	9:50	10:30	11:10	11:50
Oak Avenue	8:42	9:22	10:02	10:42	11:22	12:02
Town Hall	9:01	9:41	10:21	11:01	11:41	12:21
Temple Street	9:08	9:48	10:28	11:08	11:48	12:28

1. Bobbie needs to be at Temple Street before 11. What is the latest bus she can get from Oak Avenue?

10.02

2. Sam walks to the Cedar Road stop and gets there at 9.15 to catch the bus. What is the earliest she can get to the Town Hall?

10.21

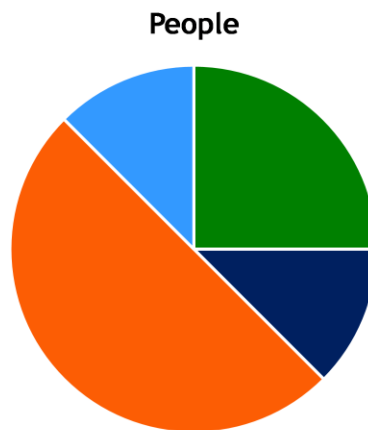
3. How long does it take Sam to get to the Town Hall?

31 minutes (The journey lasts from 9:50 to 10:21)





48 people are asked what their favourite part of Hanukkah is.



- Lighting the menorah
- Singing Hanukkah songs
- Eating latkes and doughnuts
- Playing dreidel

4. How many people like eating latkes and doughnuts?

$\frac{1}{2}$ of 48 is 24, so 24 people like eating latkes and doughnuts.

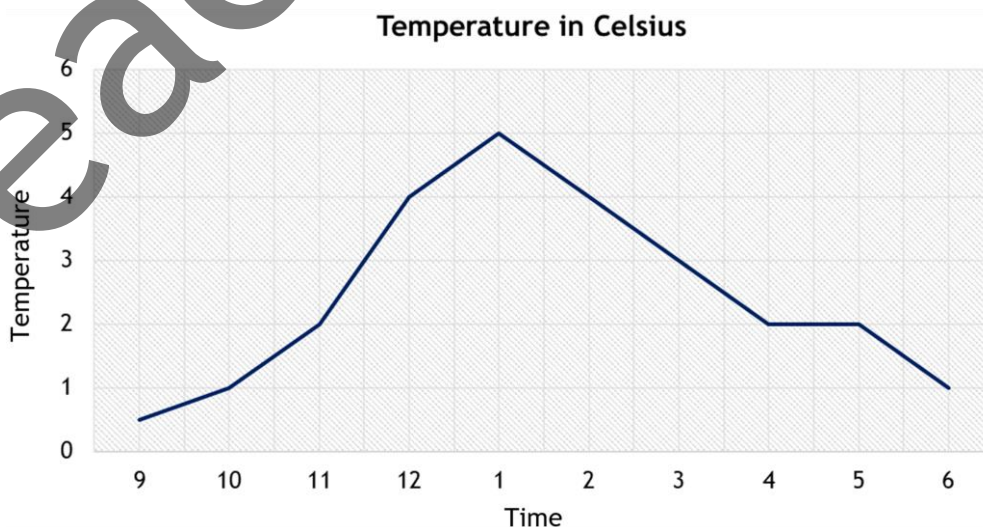
5. How many more people like lighting the menorah than playing dreidel?

A quarter like lighting the menorah and an eighth like playing dreidel. A quarter of 48 is 12 and an eighth is 6, so 6 more people like lighting the menorah than playing dreidel.

6. How many people like to sing Hanukkah songs?

$\frac{1}{8}$ of 48 like singing Hanukkah songs which is 6 people.

It was a very cold day on the first day of Hanukkah. The change of temperature across the day on each hour is shown by the following line graph:



7. What was the highest temperature during the day? 5°C





8. The first candle of the menorah was lit at 5pm. What temperature was it then?

2°C

9. How much did the temperature change between 2pm and 6pm? Did it fall or rise?

The temperature fell by 3 degrees from 4°C to 1°C.

10. The temperature rose from 2°C to 4°C at one point. When was this?

Between 11am and 12pm

11. Using the temperature graph above, find the mean of the temperatures from 10am to 4pm.

The temperatures were: 1, 2, 4, 5, 4, 3, 2. Added together this makes 21, divided by the number of values gives the mean $\frac{21}{7} = 3^\circ\text{C}$.

12. Clive collected all the ages of everyone at the Hanukkah party, but he missed one person. If the mean is 23, what is the missing age in the figures below?

2, 5, 5, 6, 6, 6, ?, 12, 13, 36, 42, 21, 76, 85

There were 14 people at the party, so the mean which is 23 = total \div 14.

The total is $14 \times 23 = 322$. The total of the thirteen figures we know is:

$$2 + 5 + 5 + 6 + 6 + 6 + 12 + 13 + 36 + 42 + 21 + 76 + 85 = 315$$

$322 - 315 = 7$, so the missing age is 7.

