

Lesson Printables

Be a rockstar and only print what you need!



Planners: 2-3

Charts/Graphs

Sunlight: 4-7

Twilight: 8-11

Midnight: 12-15

Recording Logs

Sunlight: 16-17

Twilight: 18-19

Midnight: 20-21

Answers

Sunlight: 22-23

Twilight: 24-25

Midnight: 26-27

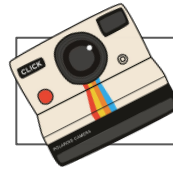
**Printing in the US? Scale to 'fit to printable area' in order to get the best print.*

LESSON 1: Data Handling/Probability - Interpreting pictograms and bar graphs

Starter	Main Activity and Input: Interpreting pictograms and bar graphs.	Plenary
<p>Black Hole Brainiacs: Using the numbers 1 to 8, can students make each row and column equal the black hole number?</p> <p>To support: 1. What is one way students could make 12? Model using trial and error to test possible solutions. 2. Students can try to solve just one of the puzzles.</p> <p>To challenge: 1. Is there more than one way to solve either puzzle?</p>	<p>Input:</p> <ol style="list-style-type: none">Slide 6 shows a dog who sells cupcakes on a cruise ship. What data can students gather from looking at the chart? Elicit from students that the key indicates that each picture of a cupcake represents two cupcakes sold. As a class, write out the number of cupcakes that match each day into the blank boxes in order to create a frequency table to match the pictures.Slide 7 has 3 questions students could answer. Give them time to write answers on whiteboards and then share ideas as a class.This process repeats on slides 8 to 10, but this time a bar graph is used. Can students read the graph and complete the frequency table on slide 8? What do students already know about bar graphs? Share ideas as a class.Slide 9 explicitly asks students to locate the key features of a bar graph and slide 10 reveals where they can be found.<ul style="list-style-type: none">Title: what the graph is about.X axis: horizontal line with a label that tells you what information can be found on the x axis.Y axis: vertical line with a label that tells you what information can be found on the y axis.Bars: shows data for each particular group on the graph. (These are evenly spaced out.)Scale: the value of each line on the y axis (or x axis depending on how the graph is set up).Slide 10 shows 3 new questions that connect to the bar graph. As a class use the graph to answer the questions. <p>Activity: Reading pictograms/bar graphs and answering related questions.</p> <ol style="list-style-type: none">Print the pictograms and bar graphs for each learning zone. You could print several copies and stick them up around your classroom. Students could work in pairs or individually. They should pick a pictogram/bar graph and record the data that it shows. Students could use the optional recording logs found in the printables to record the information.Students could also answer the questions that relate to each pictogram/bar graph. Note, students do not need to complete questions for all of the pictograms/bar graphs within their learning zone. <p>To support:</p> <ol style="list-style-type: none">Print the recording logs so that students can organise their thinking.Sunlight Zone graphs use scales of 1 or 2. <p>To challenge:</p> <ol style="list-style-type: none">Twilight and Midnight Zone pictograms/bar graphs use scales that are more than 2.Students could create their own question that connects to the pictogram/bar graph they are investigating.	<p>Missing Pictures: Can students use the data to draw the correct pictures on the pictogram?</p> <p>Check for understanding:</p> <ol style="list-style-type: none">As a class, ask students to come to the board and draw the number of squares that they think matches the information on the incomplete pictogram.

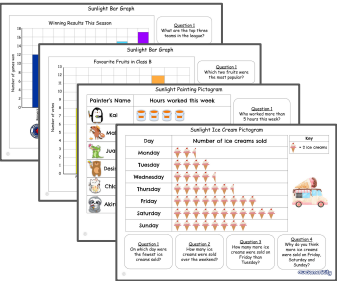
Things that might be useful for this lesson:

- Individual whiteboards:
 - Help students to record their thinking and share ideas with others.
- Examples of graphs in real life:
 - For students to explore and make real world connections.
- Rulers:
 - Help students to isolate/separate the data when reading the graphs.

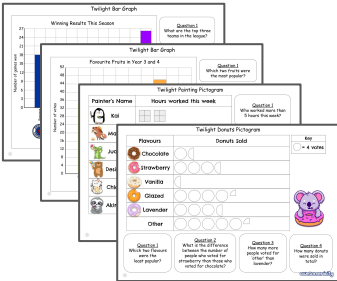


Peek at the Printables:

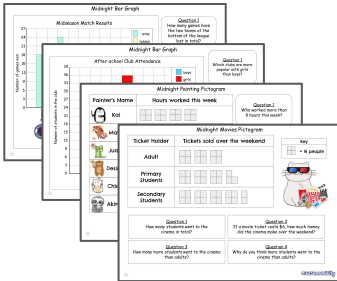
Sunlight Zone



Twilight Zone



Midnight Zone






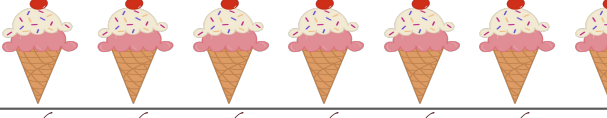






Greener Alternatives:

- Print graphs and place them in stations. Skip printing the recording logs. Students can record their findings in their books.



Sunlight Ice Cream Pictogram

Day	Number of ice creams sold
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	
Sunday	

Key
 = 2 ice creams




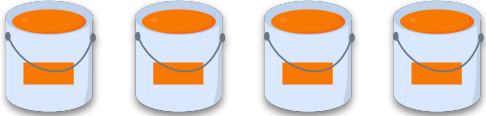

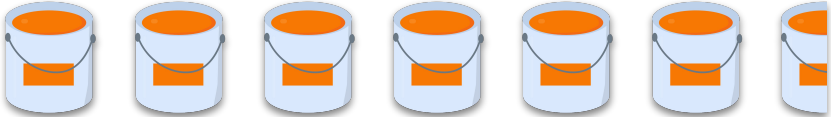



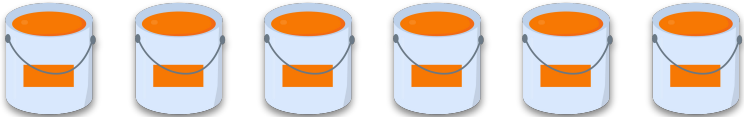




Question 1
On which day were the fewest ice creams sold?


Question 2
How many ice creams were sold over the weekend?

Question 3
How many more ice creams were sold on Friday than Tuesday?

Question 4
Why do you think more ice creams were sold on Friday, Saturday and Sunday?

Sunlight Painting Pictogram

Painter's Name	Hours worked this week
 Kai	
 Malik	
 Juan	
 Desiree	
 Chloe	
 Akira	

Key	
	= 2 hours

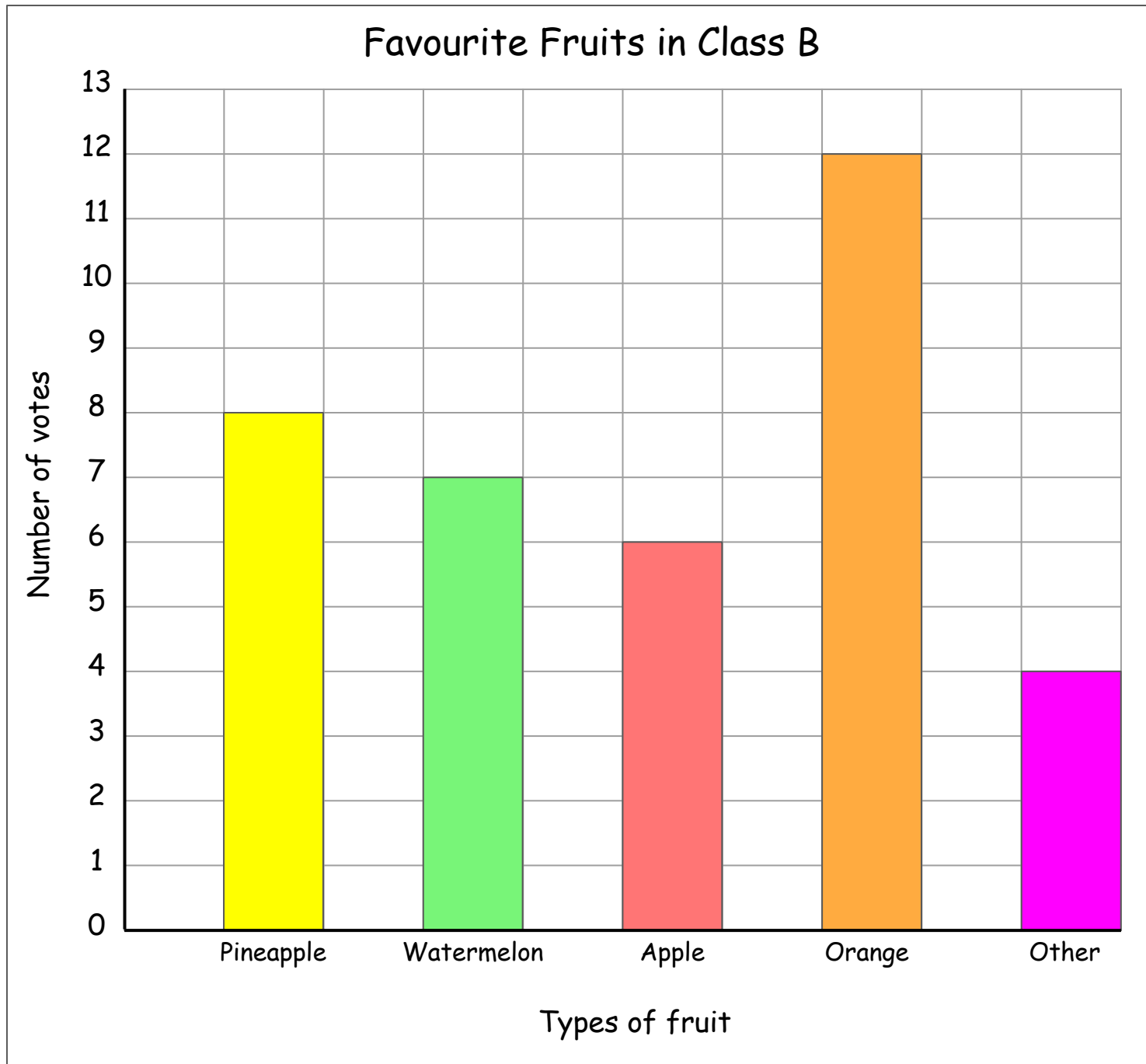
Question 1
Who worked more than 5 hours this week?

Question 2
If Juan earns \$4 an hour, how much money has he earned this week?

Question 3
What is the difference between the number of hours Akira and Kai worked?

Question 4
How many hours were spent painting this week?

Sunlight Bar Graph



Question 1

Which two fruits were the most popular?

Question 2

How many more people voted orange as their favourite fruit than watermelon?

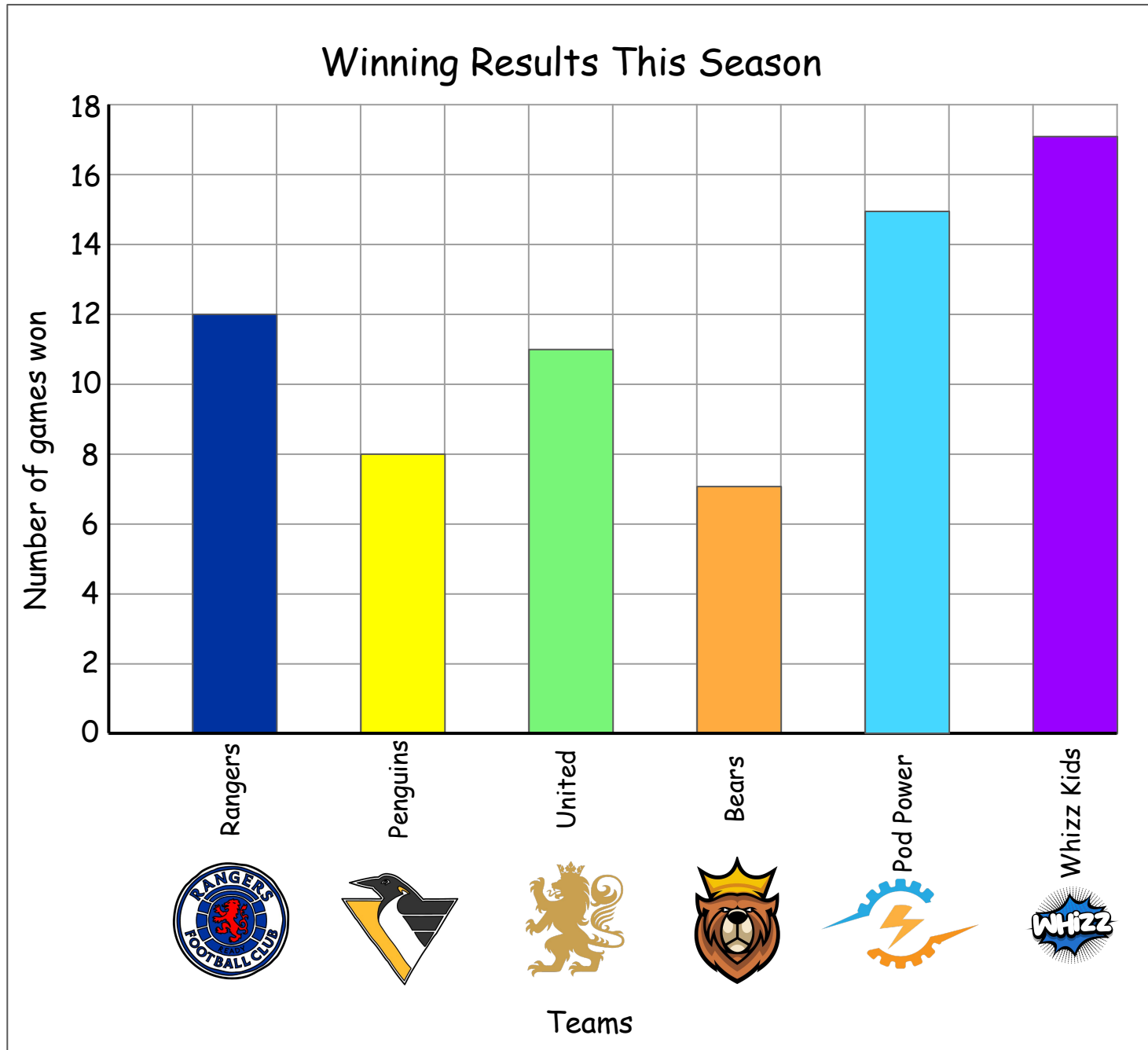
Question 3

What is the difference between the number of people who voted for pineapple compared to apple?

Question 4

How many children are in Class B?

Sunlight Bar Graph



Question 1

What are the top three teams in the league?

Question 2

How many more games did Whizz Kids win compared to United?






Question 3

If a win earns a team 3 points, how many points have the Penguins earned this season?

Question 4

If each team played 20 games this season, how many games did the Rangers lose?

Twilight Donuts Pictogram

Flavours	Donuts Sold
 Chocolate	○ ◐
 Strawberry	○ ○ ○ ◐
 Vanilla	◐
 Glazed	○ ○ ○ ○ ◑
 Lavender	○ ○ ○ ◐
Other	○ ○ ○ ○ ○ ◑

Key
○ = 4 votes




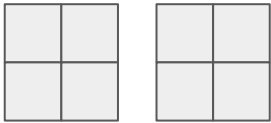

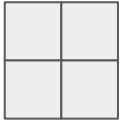

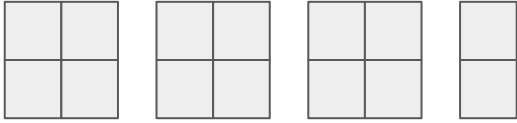

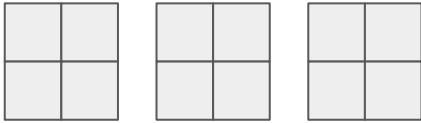

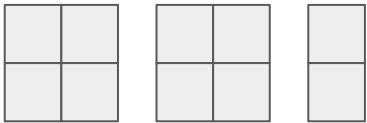

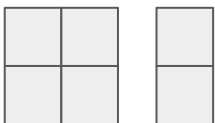
Question 1
Which two flavours were the least popular?


Question 2
What is the difference between the number of people who voted for strawberry compared to those who voted for chocolate?

Question 3
How many more people voted for 'other' than lavender?

Question 4
How many donuts were sold in total?

Twilight Painting Pictogram

Painter's Name	Hours worked this week
 Kai	
 Malik	
 Juan	
 Desiree	
 Chloe	
 Akira	

Key	
	= 2 hours

Question 1

Who worked more than 5 hours this week?

Question 2

If Juan earns \$9 an hour, how much money has he earned this week?

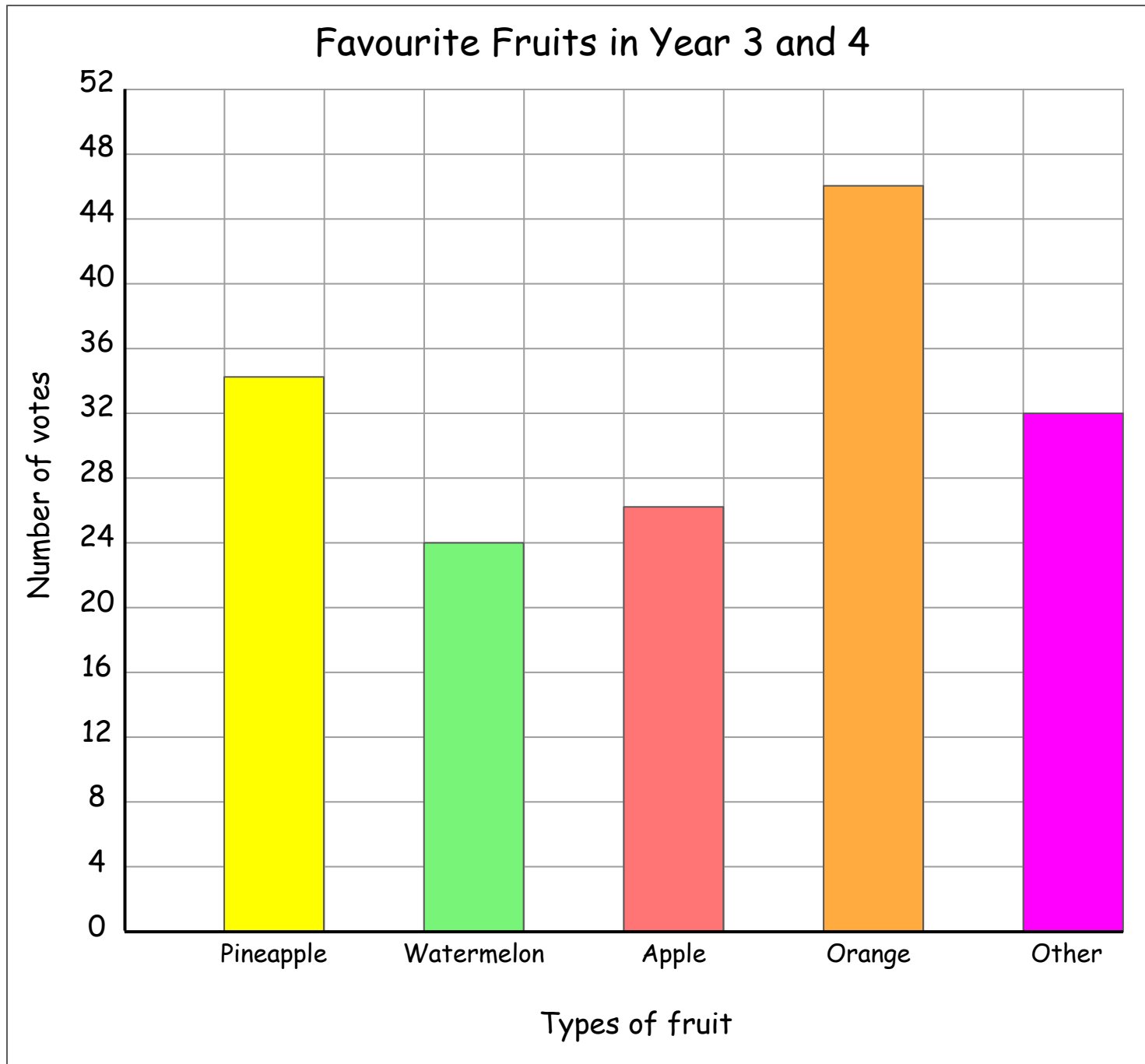
Question 3

What is the difference between the number of hours Desiree worked and the amount Kai worked?

Question 4

How many hours were spent painting this week?

Twilight Bar Graph



Question 1

Which two fruits were the most popular?

Question 2

How many more people voted orange as their favourite fruit than watermelon?

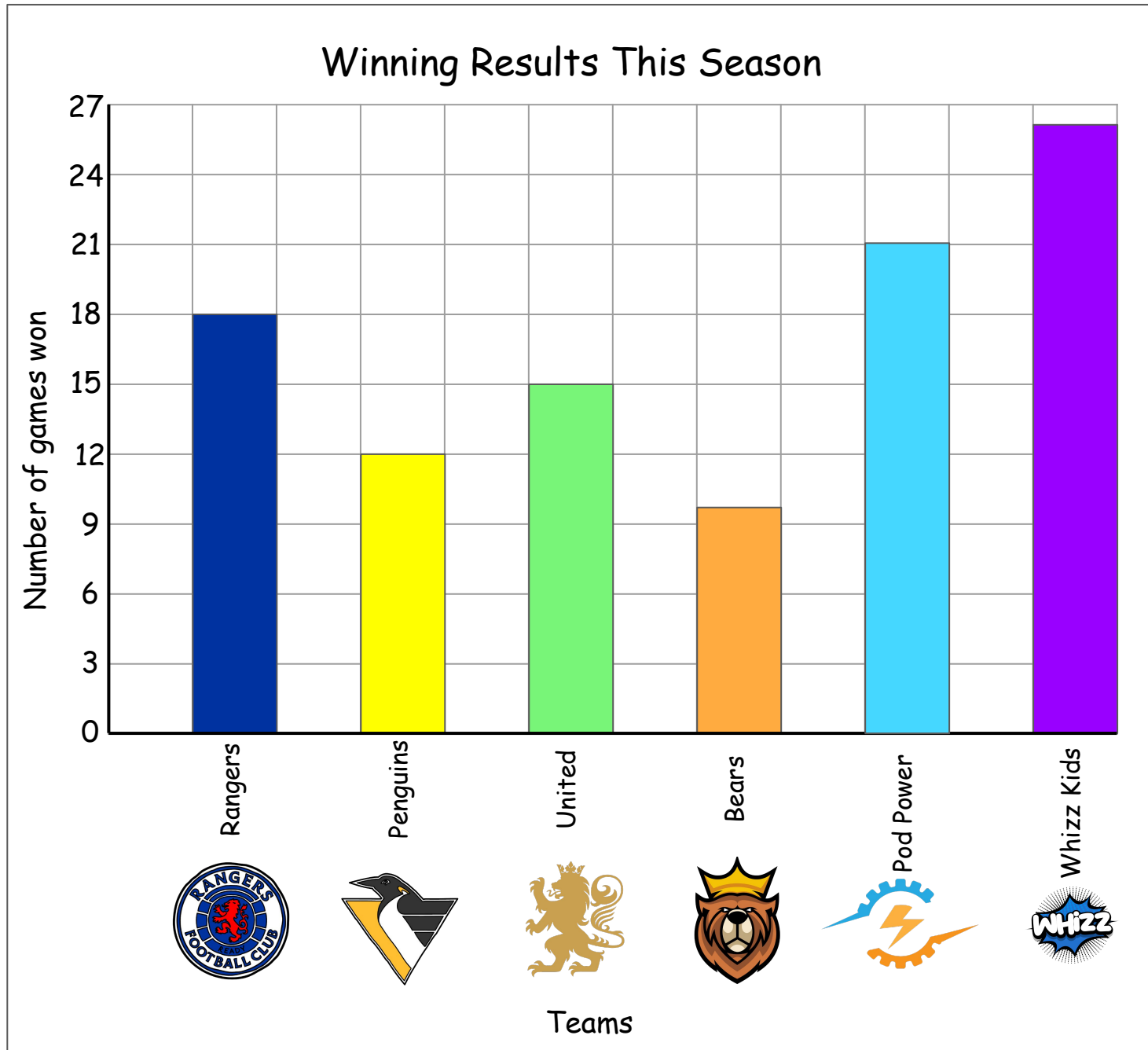
Question 3

What is the difference between the number of people who voted for pineapple compared to apple?

Question 4

How many children are in Year 3 and 4?

Twilight Bar Graph



Question 1

What are the top three teams in the league?

Question 2

How many more games did Whizz Kids win compared to United?

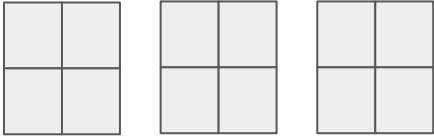
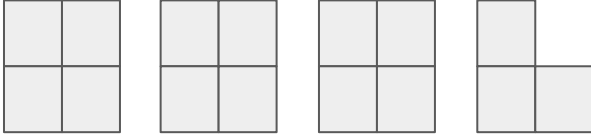
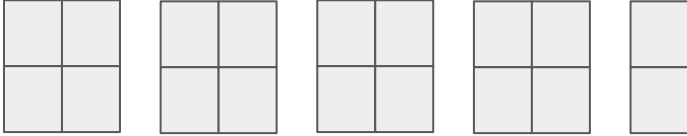
Question 3


If a win earns a team 3 points, how many points have the Penguins earned this season?

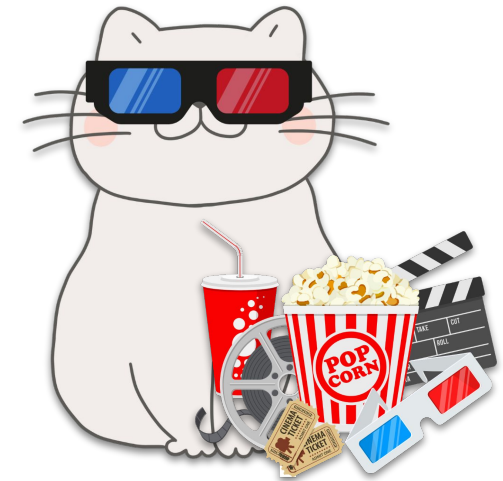
Question 4

If each team played 30 games this season, how many games did the Bears lose?

Midnight Movies Pictogram

Ticket Holder	Tickets sold over the weekend
Adult	
Primary Students	
Secondary Students	

Key	
	= 16 people




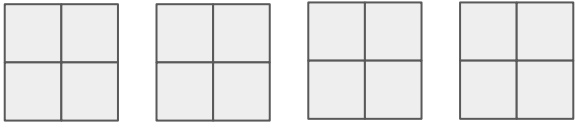

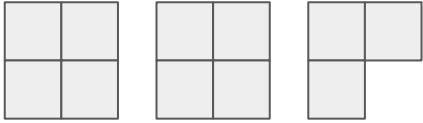

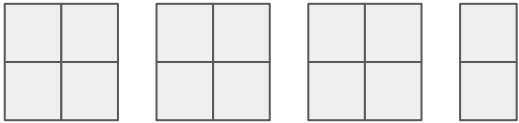

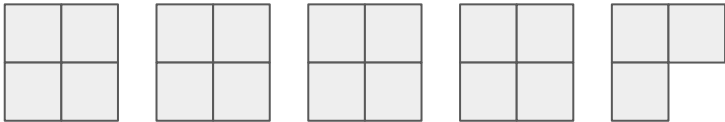

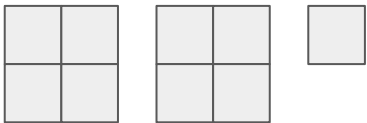

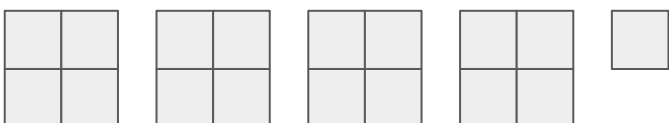
Question 1
How many *students* went to the cinema in total?

Question 2
If a movie ticket costs \$6, how much money did the cinema make over the weekend?

Question 3
How many more *students* went to the cinema than adults?

Question 4
Why do you think more students went to the cinema than adults?

Midnight Painting Pictogram


Painter's Name	Hours worked this week
 Kai	
 Malik	
 Juan	
 Desiree	
 Chloe	
 Akira	

Question 1
Who worked more than 8 hours this week?

Question 2
If Chloe earns \$36 an hour, how much money has she earned this week?

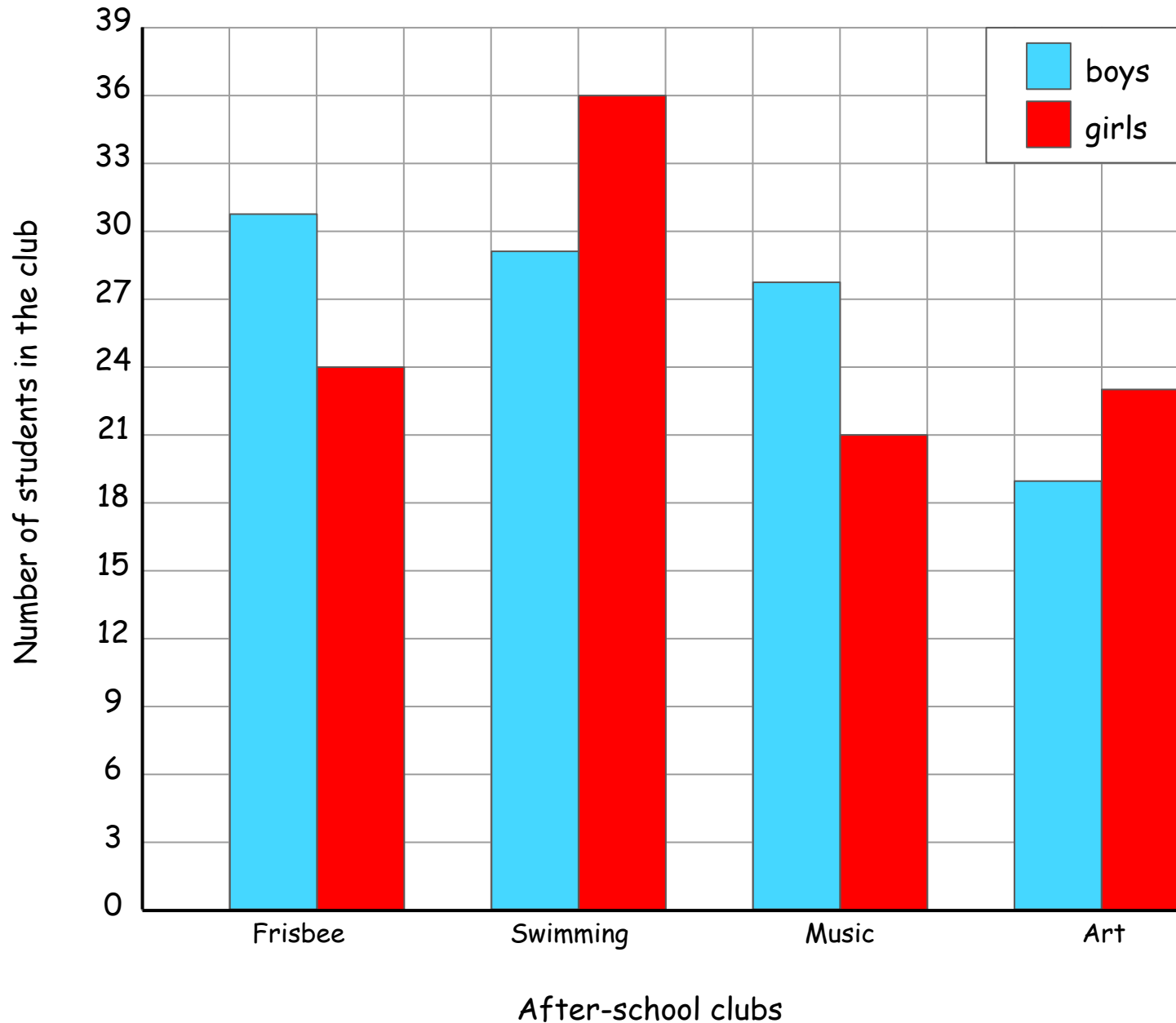
Question 3
How many more *minutes* has Desiree worked compared to the amount Juan has worked?

Question 4
How many hours were spent painting this week?

Key	
	= 2 hours

Midnight Bar Graph

After-school Club Attendance



Question 1

Which clubs are more popular with girls than boys?

Question 2

How many students attend swimming club?

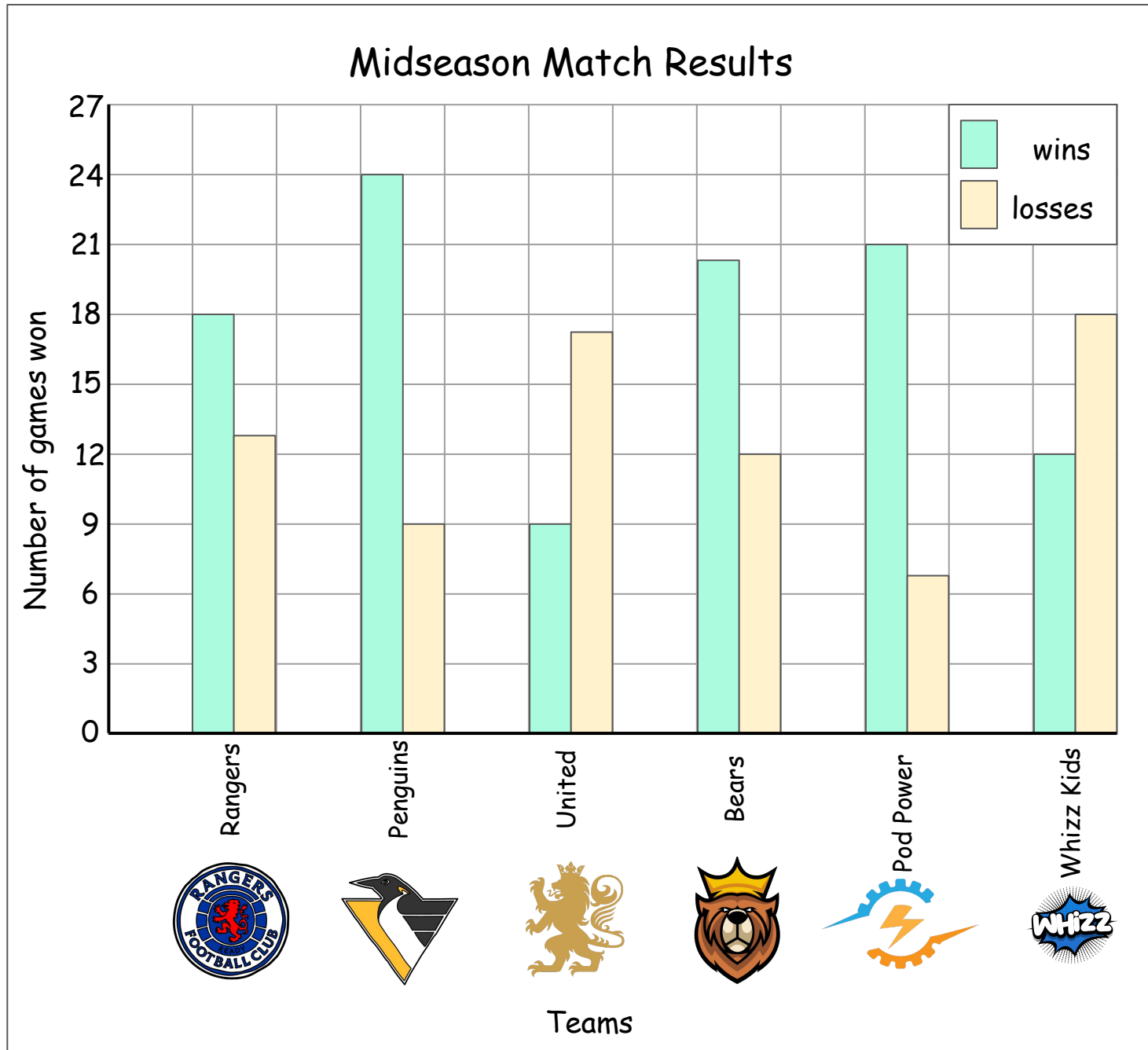
Question 3

How many more students take part in frisbee club than art club.

Question 4

How many more boys attend after-school clubs than girls?

Midnight Bar Graph



Question 1

How many games have the two teams at the bottom of the league lost in total?

Question 2

How many more games did the Penguins win compared to the Rangers?

Question 3

If a win earns a team 3 points, how many points does each team currently have?

Question 4

Which team has 3 times as many wins as losses?

Sunlight Pictogram Recording Logs



1.	3.
2.	4.



1.	3.
2.	4.

Sunlight Bar Graph Recording Logs



1.	3.
2.	4.



1.	3.
2.	4.

Twilight Pictogram Recording Logs



1.	3.
2.	4.



1.	3.
2.	4.

Twilight Bar Graph Recording Logs



1.	3.
2.	4.



1.	3.
2.	4.

Midnight Pictogram Recording Logs



1.	3.
2.	4.



1.	3.
2.	4.

Midnight Bar Graph Recording Logs



1.	3.
2.	4.



1.	3.
2.	4.

Sunlight Pictogram Answers



Monday	5
Tuesday	8
Wednesday	9
Thursday	13
Friday	18
Saturday	22
Sunday	16

1. Monday

3. $18 - 8 = 10$

2. $22 + 16 = 38$

4. Answers will vary. Maybe the weather was hotter on the weekend or more people are likely to treat themselves to an ice cream on the weekend.



Kai	8
Malik	13
Juan	5
Desiree	12
Chloe	1
Akira	15

1. Kai, Malik, Desiree and Akira

3. $15 - 8 = 7$

2. $5 \times 4 = \$20$

4. 54

Sunlight Bar Graph Answers



Pineapple	8
Watermelon	7
Apple	6
Orange	12
Other	4

1. Orange and pineapple

3. $8 - 6 = 2$

2. $12 - 7 = 5$

4. 37



Rangers	12
Penguins	8
United	11
Bears	7
Pod Power	15
Whizz Kids	17

1. Whizz Kids, Pod Power and Rangers

3. $8 \times 3 = 24$

2. $17 - 11 = 6$

4. 8

Twilight Pictogram Answers



Chocolate	6
Strawberry	14
Vanilla	2
Glazed	17
Lavender	14
Other	21

1. Vanilla and chocolate

3. $21 - 14 = 7$

2. $14 - 6 = 8$

4. 74 donuts



Kai	4
Malik	2
Juan	7
Desiree	6
Chloe	5
Akira	3

1. Juan and Desiree

3. 2 hours

2. \$63

4. 27 hours

Twilight Bar Graph Answers



Pineapple	34
Watermelon	24
Apple	26
Orange	46
Other	32

1. Orange and pineapple

3. $34 - 26 = 8$

2. $46 - 24 = 22$

4. 162



Rangers	18
Penguins	12
United	15
Bears	10
Pod Power	21
Whizz Kids	26

1. Whizz Kids, Pod Power and Rangers

3. $12 \times 3 = 36$

2. $26 - 15 = 11$

4. 20

Midnight Pictogram Answers



Adults	48
Primary students	60
Secondary Students	72

1. 132

3. $132 - 48 = 84$

2. $180 \times 6 = \$1,080$

4. Answers could vary. Families might go to the cinema together so 1 adult might be with 2 or more students.



Kai	8 hrs
Malik	5 hrs 30 min
Juan	7 hrs
Desiree	9 hrs 30 min
Chloe	4 hrs 30 min
Akira	8 hrs 30 min

1. Desiree and Akira

3. 150 minutes

2. $36 \times 4 = 144$
 $144 + 18 = \$162$

4. 43 hours

Midnight Bar Graph Answers



	Boys	Girls
frisbee	31	24
swimming	29	36
music	28	21
art	19	23

1. Swimming and art

3. 13 students

2. 65

4. $107 - 104 = 3$ more boys than girls go to after school sports clubs



	Wins	Losses
Rangers	18	13
Penguins	24	9
United	9	17
Bears	20	12
Pod Power	21	7
Whizz Kids	12	18

1. $17 + 18 = 35$ (United and Whizz kids are at the bottom because they have the most losses)

3. Rangers: $3 \times 18 = 54$
 Penguins: $3 \times 24 = 72$
 United: $3 \times 9 = 27$
 Bears: $3 \times 20 = 60$
 Pod Power: $3 \times 21 = 63$
 Whizz Kids: $3 \times 12 = 36$

2. 6

4. Pod Power