STATISTICS

A COLLECTING DATA

A.1 CHOOSING SURVEY QUESTIONS

MCQ 1: Which question helps you find out how many people in your class like chocolate?

☐ When did you last eat chocolate?

☐ What chocolate do you like?

☐ What is your favourite dessert?

☒ Do you like chocolate?

Answer: The best question to find out how many people in your class like chocolate is "Do you like chocolate?" This question directly asks if each person likes chocolate, so you can count how many say "yes." The other questions do not help you count how many people like chocolate:

- "When did you last eat chocolate?" asks about the last time they ate chocolate, not if they like it.
- "What chocolate do you like?" asks which kind they like, but doesn't tell you if they like chocolate in general.
- "What is your favourite dessert?" asks about desserts, but not specifically about chocolate.

So, the correct choice is "Do you like chocolate?" which matches the last option.

MCQ 2: Which question helps you find out the most popular ice-cream flavour in your class?

☐ Where do you buy ice-cream?

☐ How popular is ice-cream?

☒ What is your favourite ice-cream flavour?

☐ Do you like ice-cream?

Answer: The best question to find out the most popular ice-cream flavour in your class is "What is your favourite ice-cream flavour?" This question directly asks each person what flavour they like best, so you can count how many choose each flavour and find the one with the most votes. The other questions do not help you find the most popular flavour:

- "Where do you buy ice-cream?" asks where they get ice-cream, not what flavour they like.
- "How popular is ice-cream?" asks if ice-cream is popular, but doesn't tell you which flavour is the favourite.
- "Do you like ice-cream?" asks if they like ice-cream, but not which flavour they prefer.

So, the correct choice is "What is your favourite ice-cream flavour?" which matches the third option.

MCQ 3: Which question helps you find out how many people in your class have a pet?

☐ What is your favourite pet?

☐ Where does your pet sleep?

☐ When did you get your pet?

☒ Do you have a pet?

Answer: The best question to find out how many people in your class have a pet is "Do you have a pet?" This question directly asks if each person has a pet, so you can count how many say "yes." The other questions do not help you count how many people have a pet:

- "What is your favourite pet?" asks which pet they like best, but doesn't tell you if they have one.
- "Where does your pet sleep?" asks about a pet's sleeping place, but only for those who have a pet, and doesn't help you count everyone.
- "When did you get your pet?" asks when they got a pet, but doesn't tell you if they currently have one.

So, the correct choice is "Do you have a pet?" which matches the last option.

MCQ 4: Which question helps you find out how much the students in your class like the Commeunjeu Math platform, using these answers: "dislike a lot," "dislike a bit," "not sure," "like a bit," or "like a lot"?

☐ When do you use the Commeunjeu Math platform?

☐ Where do you use the Commeunjeu Math platform?

☐ What do you learn on the Commeunjeu Math platform?

☒ How much do you like the Commeunjeu Math platform?

Answer: The best question to find out how much the students in your class like the Commeunjeu Math platform, using the answers "dislike a lot," "dislike a bit," "not sure," "like a bit," or "like a lot," is "How much do you like the Commeunjeu Math platform?" This question directly asks each student how they feel about the platform, so you can use the given answers to see who dislikes it a lot, dislikes it a bit, is not sure, likes it a bit, or likes it a lot. You can then count how many students choose each answer to understand their overall feelings. The other questions do not help you use these answers:

- "When do you use the Commeunjeu Math platform?" asks about the time they use it, not how they feel about it.
- "Where do you use the Commeunjeu Math platform?" asks about the place they use it, not their feelings.
- "What do you learn on the Commeunjeu Math platform?" asks about what they learn, but doesn't tell you if they like using it.

MCQ 5: Which question helps you find out the most popular sport in your class?

☐ Where do you play sports?

☐ How often do you play sports?

☒ What is your favourite sport?

☐ Do you like to play sports?

Answer: The best question to find out the most popular sport in your class is "What is your favourite sport?" This question directly asks each person what sport they like best, so you can count how many choose each sport and find the one with the most votes. The other questions do not help you find the most popular sport:

- "Where do you play sports?" asks where they play, not which sport they like.
- "How often do you play sports?" asks how much they play, but doesn't tell you which sport is their favourite.
- "Do you like to play sports?" asks if they like sports, but not which sport they prefer.

So, the correct choice is "What is your favourite sport?" which matches the third option.

MCQ 6: Which question helps you find out how much the students in your class like going on field trips, using these answers: "dislike a lot," "dislike a bit," "not sure," "like a bit," or "like a lot"?

☒ How much do you like going on field trips?

☐ When do you go on field trips?

☐ Where do you go on field trips?

☐ What do you do on field trips?

Answer: The best question to find out how much the students in your class like going on field trips, using the answers "dislike a lot," "dislike a bit," "not sure," "like a bit," or "like a lot," is "How much do you like going on field trips?" This question directly asks each student how they feel about field trips, so you can use the given answers to see who dislikes them a lot, dislikes them a bit, is not sure, likes them a bit, or likes them a lot. You can then count how many students choose each answer to understand their overall feelings. The other questions do not help you use these answers:

- "When do you go on field trips?" asks about the time they go, not how they feel about it.
- "Where do you go on field trips?" asks about the places they visit, not their feelings.
- "What do you do on field trips?" asks about the activities they do, but doesn't tell you if they like going on them.

A.2 TALLYING DATA

Ex 7: In his class, Hugo asks the students: "Do you have a sibling?"
The results are: Yes, No, Yes, Yes, Yes, No, No, Yes, Yes, Yes, No.

Complete the table

Sibling	Total
Yes	7
No	4

Answer: To find the totals, count the number of "Yes" and "No" responses from the list: Yes, No, Yes, Yes, Yes, No, No, Yes, Yes, Yes, No.

- "Yes" responses: There are 7 "Yes" (Yes, Yes, Yes, Yes, Yes, Yes, Yes).
- "No" responses: There are 4 "No" (No, No, No, No).

Ex 8: In his class, Léo asks the students: "Do you prefer playing indoors or outdoors during recess?"
The results are: Outdoors, Indoors, Outdoors, Indoors, Outdoors, Outdoors, Indoors, Outdoors, Indoors, Outdoors.

Complete the table

Preference	Total
Outdoors	6
Indoors	4

Answer: To find the totals, count the number of "Outdoors" and "Indoors" responses from the list: Outdoors, Indoors, Outdoors, Indoors, Outdoors, Outdoors, Indoors, Outdoors, Indoors, Outdoors.

- "Outdoors" responses: There are 6 "Outdoors" (Outdoors, Outdoors, Outdoors, Outdoors, Outdoors, Outdoors).
- "Indoors" responses: There are 4 "Indoors" (Indoors, Indoors, Indoors, Indoors).

Ex 9: In her class, Clara asks the students: "Do you like to eat vegetables for lunch?"
The results are:

- **Yes**: Emma, Noah, Lila, Tom.
- **No**: Mia, Leo, Sam.

Complete the table

Preference	Total
Yes	4
No	3

Answer: To find the totals, count the number of students for "Yes" and "No" from the list: Yes: Emma, Noah, Lila, Tom. No: Mia, Leo, Sam.

- "Yes" responses: There are 4 students (Emma, Noah, Lila, Tom).
- "No" responses: There are 3 students (Mia, Leo, Sam).

Ex 10: In her class, Clara asks the students: "What is your favorite pet?"
The results are:

- **Cat**: Emma, Noah, Lila.
- **Dog**: Tom, Mia, Leo, Sam.
- **Reptile**: Zoe, Ben.

Complete the table

Pet	Total
Cat	3
Dog	4
Reptile	2

Answer: To find the totals, count the number of students for "Cat," "Dog," and "Reptile" from the list: Cat: Emma, Noah, Lila. Dog: Tom, Mia, Leo, Sam. Reptile: Zoe, Ben.

- "Cat" responses: There are 3 students (Emma, Noah, Lila).
- "Dog" responses: There are 4 students (Tom, Mia, Leo, Sam).
- "Reptile" responses: There are 2 students (Zoe, Ben).

Ex 11: In her class, Clara asks the students: "What is your favorite color?"
The results are:

- **Red**: Emma, Tom, Zoe.
- **Blue**: Noah, Mia, Leo, Sam.
- **Yellow**: Lila, Ben.

Complete the table

Color	Total
Red	3
Blue	4
Yellow	2

Answer: To find the totals, count the number of students for "Red," "Blue," and "Yellow" from the list: Red: Emma, Tom, Zoe. Blue: Noah, Mia, Leo, Sam. Yellow: Lila, Ben.

- "Red" responses: There are 3 students (Emma, Tom, Zoe).
- "Blue" responses: There are 4 students (Noah, Mia, Leo, Sam).
- "Yellow" responses: There are 2 students (Lila, Ben).

A.3 CONDUCTING SIMPLE SURVEYS

Ex 12: In his class, Hugo asks the students: "What is your favorite pet?"
Complete the table

Pet	Number of Students	Total
Cat	𝍸	4
Dog	𝍸|	6
Reptile	||	2

How many students are asked?

12 students

Which pet is the most popular?

Dog

Answer:

- To find the total number of students asked, add the number of students for each pet:

$$4\,(\text{Cat}) + 6\,(\text{Dog}) + 2\,(\text{Reptile}) = 12\,\text{students}$$

  So, 12 students are asked, which matches 12 students.
- The most popular pet is the one with the highest number of students. The dog has 6 students, which is more than the cat (4 students) and the reptile (2 students). So, the dog is the most popular pet.

Ex 13: In her class, Lia asks the students: "What is your favorite color?"
Complete the table

Color	Number of Students	Total
Red	|||	3
Blue	𝍸	5
Green	||||	4

How many students are asked?

12 students

Which color is the most popular?

Blue

Answer:

- To find the total number of students asked, add the number of students for each color:

$$3\,(\text{Red}) + 5\,(\text{Blue}) + 4\,(\text{Green}) = 12\,\text{students}$$

  So, 12 students are asked, which matches 12 students.
- The most popular color is the one with the highest number of students. Blue has 5 students, which is more than Red (3 students) and Green (4 students). So, Blue is the most popular color.

Ex 14: In her class, Mia asks the students: "What is your favorite fruit?"
Complete the table

Fruit	Number of Students	Total
Apple	𝍸	5
Orange	||	2
Banana	|||	3

How many students are asked?

10 students

Which fruit is the most popular?

Apple

Answer:

- To find the total number of students asked, add the number of students for each fruit:

$$5\,(\text{Apple}) + 2\,(\text{Orange}) + 3\,(\text{Banana}) = 10\,\text{students}$$

  So, 10 students are asked, which matches 10 students.
- The most popular fruit is the one with the highest number of students. The apple has 5 students, which is more than the orange (2 students) and the banana (3 students). So, the apple is the most popular fruit.

Ex 15: In her class, Zoé asks the students: "Who do you vote for as class representative?"
Complete the table

Candidate	Number of Votes	Total
Emma	𝍸|	6
Liam	||||	4
Noah	|||	3

How many students voted?

$\boxed{13}$ students

Who is elected as the class representative?

Emma

Answer:

- To find the total number of students who voted, add the number of votes for each candidate:

  $$6\,(\text{Emma}) + 4\,(\text{Liam}) + 3\,(\text{Noah}) = 13\,\text{students}$$

  So, 13 students voted.

- The elected class representative is the candidate with the highest number of votes. Emma has 6 votes, which is more than Liam (4 votes) and Noah (3 votes). So, Emma is elected as the class representative.

A.4 WRITING A SURVEY QUESTION

Ex 16: Write a survey question about food preferences.

Answer: A good survey question about food preferences should ask students what they like to eat in a clear way, so you can collect answers to understand their favorites. An example like "What is your favorite dish?" is a good question because it directly asks students to share their favorite food, making it easy to count how many choose each dish. Other good examples could be "What is your favorite fruit?" or "What snack do you like best?" These questions help you gather data about food preferences in a way that Grade 4 students can answer easily.

Ex 17: Write a survey question about favorite school subjects.

Answer: A good survey question about favorite school subjects should ask students what subject they like best in a clear way, so you can collect answers to understand their preferences. An example like "What is your favorite subject at school?" is a good question because it directly asks students to share their favorite subject, making it easy to count how many choose each subject, such as math, science, or art. Other good examples could be "Which subject do you like the most?" or "What subject is your favorite to learn?" These questions help you gather data about school subject preferences in a way that Grade 4 students can answer easily.

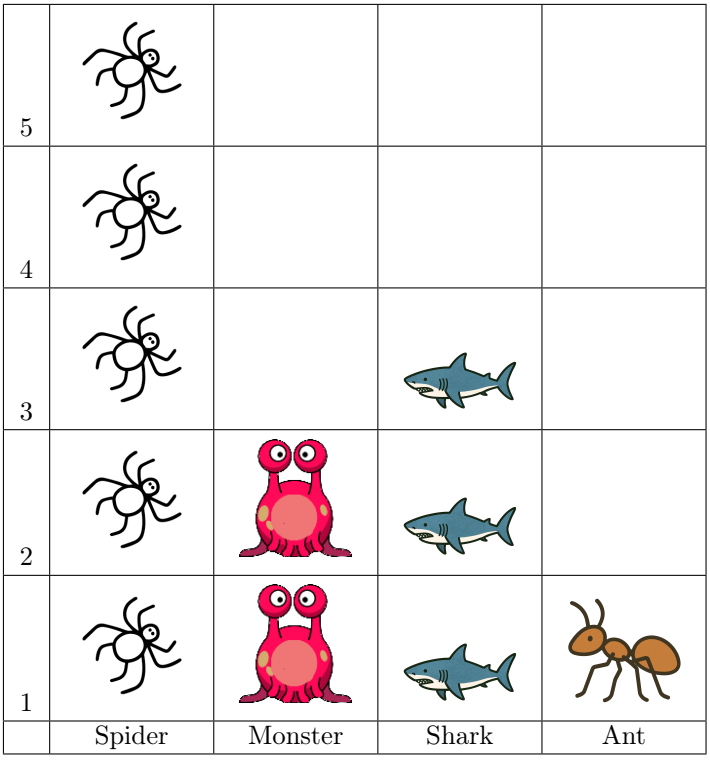
Ex 18: Write a survey question about weekend activities.

Answer: A good survey question about weekend activities should ask students what they like to do on the weekend in a clear way, so you can collect answers to understand their preferences. An example like "What is your favorite thing to do on the weekend?" is a good question because it directly asks students to share their favorite activity, making it easy to count how many choose each activity, such as playing sports, watching movies, or visiting friends. Other good examples could be "What do you like to do most on the weekend?" or "What is your favorite weekend activity?" These questions help you gather data about weekend activity preferences in a way that Grade 4 students can answer easily.

B REPRESENTING DATA

B.1 INTERPRETING PICTOGRAPHS

Ex 19: In his class, Hugo asks the students: "What do you fear the most?"
He represents the result with a pictograph



How many students select shark as the most feared?

$\boxed{3}$ students

Which is the most feared?

Spider

Which is the least feared?

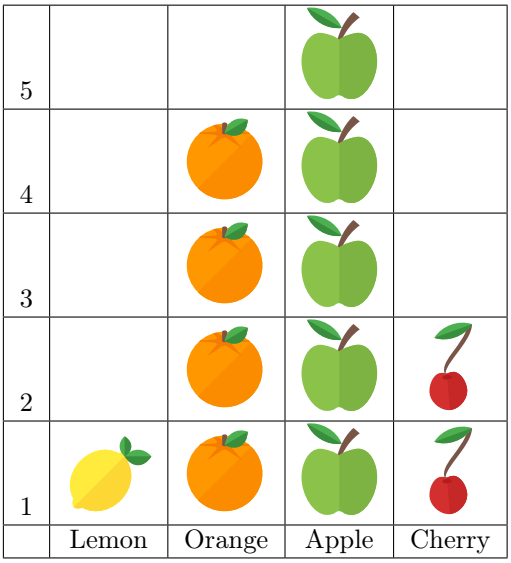
Ant

Answer: To find the totals, count the number of students for each fear from the pictograph:

- Spider: 5 students.
- Monster: 2 students.
- Shark: 3 students.
- Ant: 1 student.

1. For Shark, there are 3 students.
2. The most feared is the one with the highest number of students. Spider has 5 students.
3. The least feared is the one with the lowest number of students. Ant has 1 student, which is less than Spider (5), Shark (3), and Monster (2). So, Ant is the least feared.

Ex 20: In his class, Hugo asks the students: "What is your favorite fruit?"
He represents the result with a pictograph



How many students select orange as favorite fruit?

4 students

Which fruit is the most popular?

Apple

Which fruit is the least popular?

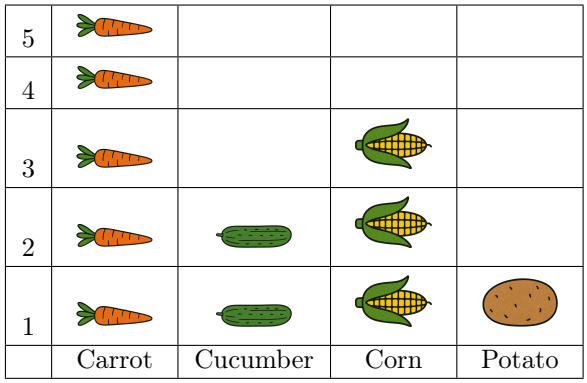
Lemon

Answer: To find the totals, count the number of students for each fruit from the pictograph:

- Lemon: 1 student).
- Orange: 4 students.
- Apple: 5 students.
- Cherry: 2 students.

1. For Orange, there are 4 students.
2. The most popular fruit is the one with the highest number of students. Apple has 5 students, which is more than Orange (4), Cherry (2), and Lemon (1). So, Apple is the most popular.
3. The least popular fruit is the one with the lowest number of students. Lemon has 1 student, which is less than Orange (4), Apple (5), and Cherry (2). So, Lemon is the least popular.

Ex 21: In his class, Hugo asks the students: "What is your favorite food?"
He represents the result with a pictograph



How many students select corn as favorite food?

3 students

Which food is the most popular?

Carrot

Which food is the least popular?

Potato

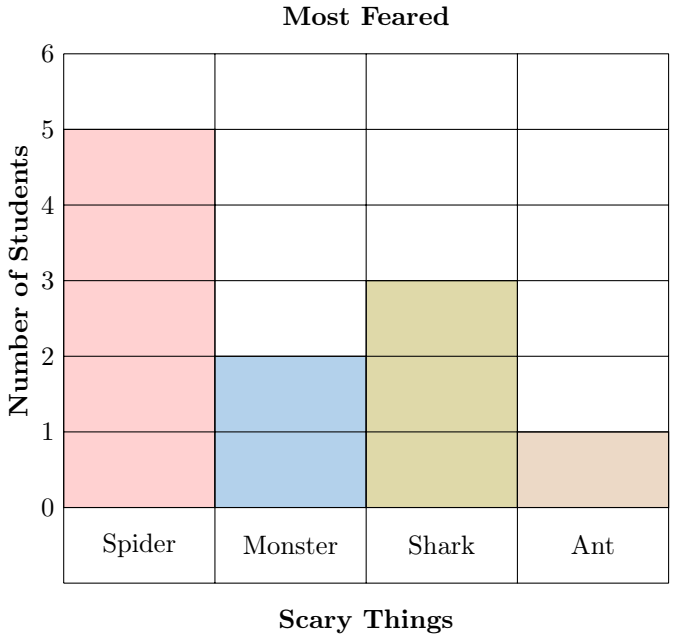
Answer: To find the totals, count the number of students for each food from the pictograph:

- Carrot: 5 students.
- Cucumber: 2 students.
- Corn: 3 students.
- Potato: 1 student.

1. For Corn, there are 3 students.
2. The most popular food is the one with the highest number of students. Carrot has 5 students, which is more than Cucumber (2), Corn (3), and Potato (1). So, Carrot is the most popular.
3. The least popular food is the one with the lowest number of students. Potato has 1 student, which is less than Carrot (5), Cucumber (2), and Corn (3). So, Potato is the least popular.

B.2 INTERPRETING BAR CHARTS

Ex 22: In his class, Hugo asks the students: "What do you fear the most?"
He represents the result with a bar chart:



How many students select shark as the most feared?

3 students

Which is the most feared?

Spider

Which is the least feared?

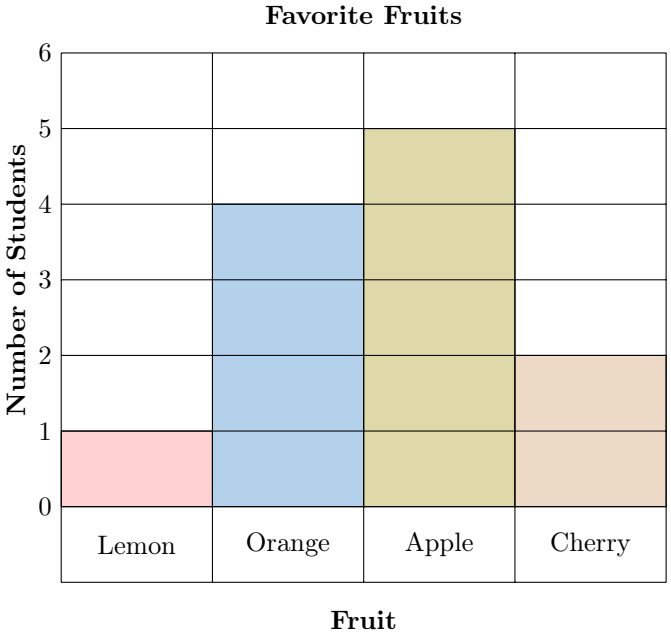
Ant

Answer: To find the totals, count the number of students for each fear from the bar chart:

- Spider: 5 students.
- Monster: 2 students.
- Shark: 3 students.
- Ant: 1 student.

1. For Shark, there are 3 students.
2. The most feared is the one with the highest number of students. Spider has 5 students, which is more than Shark (3), Monster (2), and Ant (1). So, Spider is the most feared.
3. The least feared is the one with the lowest number of students. Ant has 1 student, which is less than Spider (5), Shark (3), and Monster (2). So, Ant is the least feared.

Ex 23: In his class, Hugo asks the students: "What is your favorite fruit?"
He represents the result with a bar chart:



How many students select orange as favorite fruit?

4 students

Which fruit is the most popular?

Apple

Which fruit is the least popular?

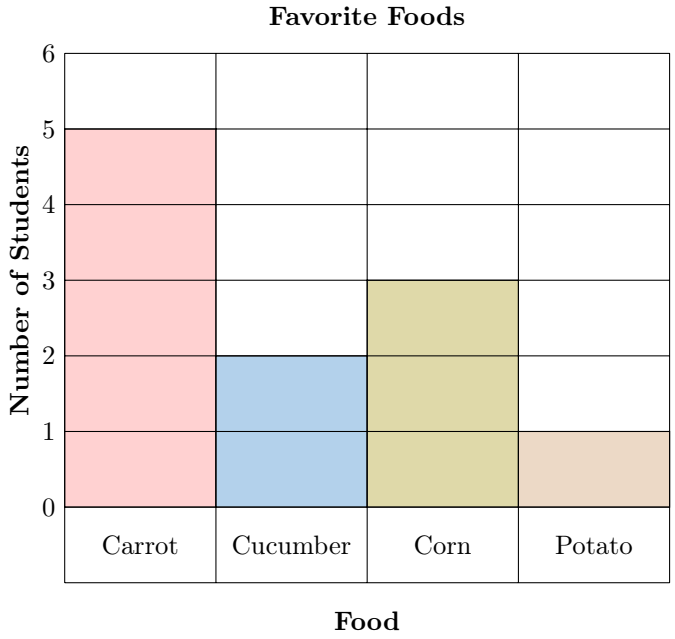
Lemon

Answer: To find the totals, count the number of students for each fruit from the bar chart:

- Lemon: 1 student.
- Orange: 4 students.
- Apple: 5 students.
- Cherry: 2 students.

1. For Orange, there are 4 students.
2. The most popular fruit is the one with the highest number of students. Apple has 5 students, which is more than Orange (4), Cherry (2), and Lemon (1). So, Apple is the most popular.
3. The least popular fruit is the one with the lowest number of students. Lemon has 1 student, which is less than Orange (4), Apple (5), and Cherry (2). So, Lemon is the least popular.

Ex 24: In his class, Hugo asks the students: "What is your favorite food?"
He represents the result with a bar chart:



How many students select corn as favorite food?

3 students

Which food is the most popular?

Carrot

Which food is the least popular?

Potato

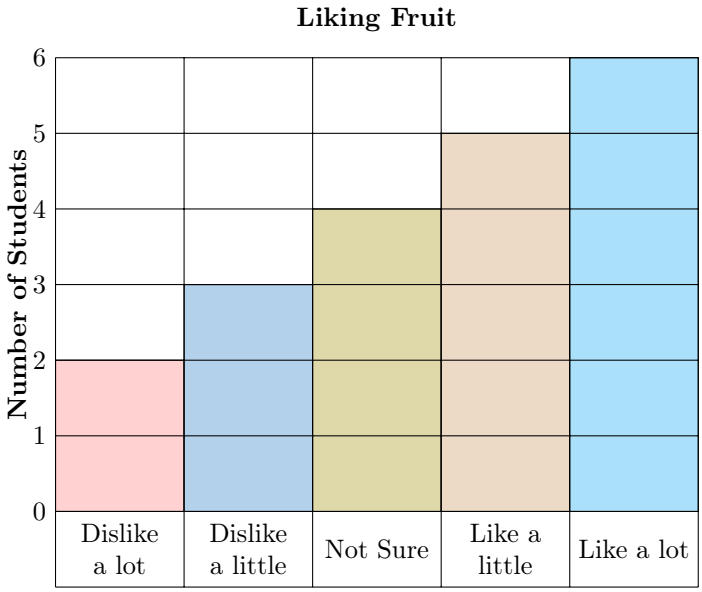
Answer: To find the totals, count the number of students for each food from the bar chart:

- Carrot: 5 students.
- Cucumber: 2 students.
- Corn: 3 students.
- Potato: 1 student.

1. For Corn, there are 3 students.
2. The most popular food is the one with the highest number of students. Carrot has 5 students, which is more than Cucumber (2), Corn (3), and Potato (1). So, Carrot is the most popular.
3. The least popular food is the one with the lowest number of students. Potato has 1 student, which is less than Carrot (5), Cucumber (2), and Corn (3). So, Potato is the least popular.

B.3 INTERPRETING BAR CHARTS

Ex 25: In his class, Hugo asks the students: "How much do you like eating fruit?"
He represents the result with a bar chart:



How many students like eating fruit "Not Sure"?

4 students

Which feeling is the most common?

Like a lot

Which feeling is the least common?

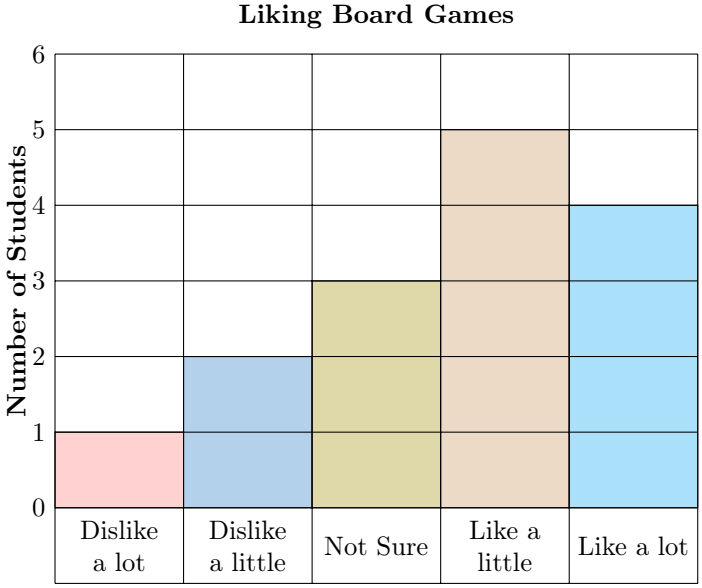
Dislike a lot

Answer: To find the totals, count the number of students for each feeling from the bar chart:

- "Dislike a lot" : 2 students (height of bar at 2).
- "Dislike a little" : 3 students (height of bar at 3).
- "Not Sure" : 4 students (height of bar at 4).
- "Like a little" : 5 students (height of bar at 5).
- "Like a lot" : 6 students (height of bar at 6).

1. For "Not Sure" , there are 4 students.
2. The most common feeling is the one with the highest number of students. "Like a lot" has 6 students, which is more than "Like a little" (Bien, 5), "Not Sure" (Moyen, 4), "Dislike a little" (Un peu, 3), and "Dislike a lot" (Pas du tout, 2). So, "Like a lot" is the most common.
3. The least common feeling is the one with the lowest number of students. "Dislike a lot" has 2 students, which is less than "Like a lot" (Beaucoup, 6), "Like a little" (Bien, 5), "Not Sure" (Moyen, 4), and "Dislike a little" (Un peu, 3). So, "Dislike a lot" is the least common.

Ex 26: In his class, Hugo asks the students: "How much do you like playing board games?"
He represents the result with a bar chart:



How many students like playing board games "Not Sure"?

3 students

Which feeling is the most common?

Like a little

Which feeling is the least common?

Dislike a lot

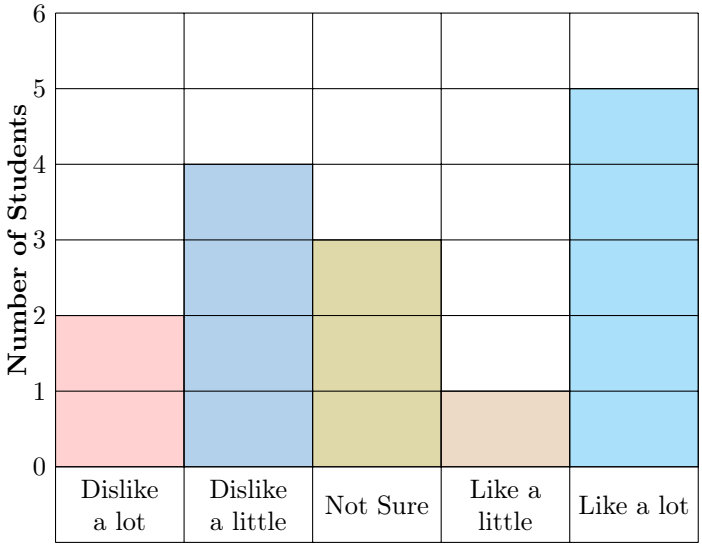
Answer: To find the totals, count the number of students for each feeling from the bar chart:

- "Dislike a lot" : 3 students (height of bar at 3).
- "Dislike a little" : 2 students (height of bar at 2).
- "Not Sure" : 5 students (height of bar at 5).
- "Like a little" : 4 students (height of bar at 4).
- "Like a lot" : 1 student (height of bar at 1).

1. For "Not Sure" , there are 5 students.
2. The most common feeling is the one with the highest number of students. "Not Sure" has 5 students, which is more than "Like a little" (Bien, 4), "Dislike a lot" (Pas du tout, 3), "Dislike a little" (Un peu, 2), and "Like a lot" (Beaucoup, 1). So, "Not Sure" is the most common.
3. The least common feeling is the one with the lowest number of students. "Like a lot" has 1 student, which is less than "Not Sure" (Moyen, 5), "Like a little" (Bien, 4), "Dislike a lot" (Pas du tout, 3), and "Dislike a little" (Un peu, 2). So, "Like a lot" is the least common.

Ex 27: In his class, Hugo asks the students: "How much do you like visiting the library?"
He represents the result with a bar chart:

Liking the Library



How many students like visiting the library "Dislike a little"?

4 students

How many students either "Like a little" or "Like a lot"?

6 students

How many more students chose "Like a lot" than "Dislike a lot"?

3 students

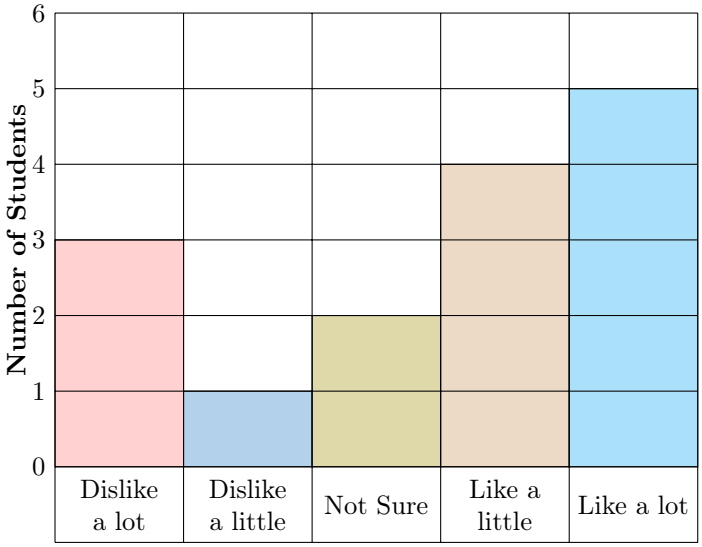
Answer: To find the totals, count the number of students for each feeling from the bar chart:

- "Dislike a lot" : 2 students (height of bar at 2).
- "Dislike a little" : 4 students (height of bar at 4).
- "Not Sure" : 3 students (height of bar at 3).
- "Like a little" : 1 student (height of bar at 1).
- "Like a lot" : 5 students (height of bar at 5).

1. For "Dislike a little" , there are 4 students.
2. To find how many students chose either "Like a little" or "Like a lot" , add the totals for these categories: "Like a little" has 1 student, and "Like a lot" has 5 students. So, 1 + 5 = 6 students.
3. To find how many more students chose "Like a lot" than "Dislike a lot" , subtract the totals: "Like a lot" has 5 students, and "Dislike a lot" has 2 students. So, 5 - 2 = 3 students.

Ex 28: In his class, Hugo asks the students: "How much do you like doing science experiments?"
He represents the result with a bar chart:

Liking Science Experiments



How many students like doing science experiments "Like a little"?

4 students

How many students either "Dislike a lot" or "Dislike a little"?

4 students

How many more students chose "Like a little" than "Not Sure"?

2 students

Answer: To find the totals, count the number of students for each feeling from the bar chart:

- "Dislike a lot" : 3 students (height of bar at 3).
- "Dislike a little" : 1 student (height of bar at 1).
- "Not Sure" : 2 students (height of bar at 2).
- "Like a little" : 4 students (height of bar at 4).
- "Like a lot" : 5 students (height of bar at 5).

1. For "Like a little" , there are 4 students.
2. To find how many students chose either "Dislike a lot" or "Dislike a little" , add the totals for these categories: "Dislike a lot" has 3 students, and "Dislike a little" has 1 student. So, 3 + 1 = 4 students.
3. To find how many more students chose "Like a little" than "Not Sure", subtract the totals: "Not Sure" has 2 students, and "Like a little" has 4 students. So, 4-2 = 2 students.