Merit Tutoring

WORKSHEET 49

MODE — IDENTIFYING THE MOST COMMON

Year 5 Mathematics — Australian Curriculum v9.0

Strand: Statistics | **Sub-strand:** Data | **Code:** AC9M5ST01

Name: _____ **Date:** _____

Key Concept: The mode is the value or category that appears most frequently in a data set. It tells us what is most common or popular. A data set can have one mode, more than one mode (bimodal or multimodal), or no mode at all.

Section 1 — Fluency: Categorical Mode

Question 1: Look at the list of fruits below. Which fruit is the mode for this data set?

Apple | Banana | Apple | Orange | Apple | Banana

Answer: _____

Question 2: Students were asked their favorite color. The responses are shown below:

Blue, Red, Blue, Green, Blue, Yellow, Red, Blue

What is the mode?

Answer: _____

Question 3: Look at the data cloud below. Count each animal and identify the mode.

(= Dog, = Cat, = Bird)

Mode: _____

Question 4: In a survey about favorite sports, Soccer was chosen 15 times, Basketball 8 times, Swimming 15 times, and Tennis 6 times. What is/are the mode(s)?

Answer: _____

Question 5: True or False: The mode is always the largest number in a data set.

Answer: _____

Question 6: A class voted on their favorite lunch option:

Pizza (8 votes), Sandwiches (12 votes), Pasta (5 votes), Salad (3 votes)

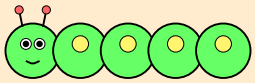
What is the mode?

Answer: _____

Question 7: Define the mode in your own words.

Answer: _____

_____



Most Common Caterpillar!

You're crawling through categorical data like a pro!

Joke: Why did the mode get invited to every party? Because it was the most popular!

Section 2 — Reasoning: Numerical Mode

Question 8: Find the mode for this list of shoe sizes:

5, 6, 5, 7, 8, 5, 6

Mode: _____

Question 9: Can a data set have two modes? If a set of numbers is 2, 2, 3, 4, 4, which numbers are the modes?

Answer: _____

Question 10: Find the mode for this data set:

12, 15, 12, 18, 20, 12, 15, 22

Mode: _____

Question 11: A set of test scores is: 85, 90, 85, 75, 90, 85, 80. What is the mode?

Mode: _____

Question 12: Look at this data set: 3, 5, 7, 9, 11. Does this set have a

mode? Explain.

Answer: _____

_____

Question 13: The ages of children at a party are: 10, 11, 10, 9, 10, 11, 10, 12. What is the mode age?

Mode: _____

Question 14: A bimodal data set has how many modes?

Answer: _____

Question 15: Create your own data set of 8 numbers that has a mode of 7.

Data set: _____

Mode Meerkat!

You're standing tall with numerical modes!

Joke: What did the mode say to the mean? "I'm the most common, you're just average!"

Section 3 — Challenge: Interpreting Tables

Question 16: Look at the frequency table showing students' favorite subjects:

Subject	Frequency
Maths	12
Art	8
PE	15
Music	12
Science	10

a) What is the mode of this data?

Answer: _____

b) What does this tell us about the students' preferences?

Answer: _____

_____

Question 17: A bakery recorded how many customers bought each type of bread:

Bread Type	Number Sold
White	45
Wholemeal	38
Sourdough	52
Rye	30

What is the mode? Why might this be useful for the bakery owner?

Mode: _____ Reason: _____

_____

Question 18: Look at this data showing the number of books read by students in a month:

2, 3, 5, 3, 4, 3, 6, 3, 2, 5, 3

What is the mode? What does this tell us?

Mode: _____ Interpretation: _____

Question 19: A survey asked 50 people their preferred streaming service. The results show Netflix (18), Stan (15), Disney+ (18), and Others (9). Is this data set bimodal? Explain.

Answer: _____

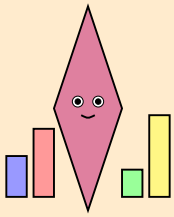
_____

Question 20: Create a frequency table for your own data showing favorite ice cream flavors. Include at least 4 flavors and make sure your data has a clear mode.

Question 21: Why is knowing the mode important when analyzing data?

Answer: _____

_____



Frequency Fanatic!

You’re a champion at interpreting tables and data!

Joke: Why did the data set go to school? To improve its mode of thinking!

Fantastic Work! You’ve completed Worksheet 49!

WORKSHEET 49
ANSWER KEY

Section 1 — Fluency: Categorical Mode

1. Apple (appears 3 times, most frequently)
2. Blue (appears 4 times)
3. Dog (appears 5 times; Cat appears 4 times; Bird appears 1 time)
4. Soccer and Swimming (both appear 15 times—bimodal data set)
5. False (the mode is the most frequently occurring value, not necessarily the largest number)
6. Sandwiches (12 votes, the highest frequency)
7. The mode is the value that appears most often in a data set; it is the most common or popular item/number

Section 2 — Reasoning: Numerical Mode

8. 5 (appears 3 times)
9. Yes, a data set can have two modes (bimodal); the modes are 2 and 4 (both appear twice)
10. 12 (appears 3 times)
11. 85 (appears 3 times)
12. No, this set has no mode because every number appears only once
13. 10 (appears 4 times)
14. 2 modes
15. Student answer will vary but must include at least three 7s. Example: 7, 7, 7, 5, 6, 8, 9, 4

Section 3 — Challenge: Interpreting Tables

16. a) PE (with frequency of 15)
    b) PE is the most popular subject among students in this survey; more students prefer PE than any other subject

17. Mode: Sourdough (52 sold); Reason: The bakery owner can stock more of this bread type since it's the most popular and sells the most

18. Mode: 3 books; Interpretation: Most students in the class read 3 books in a month; this is the most common reading level

19. Yes, this data set is bimodal because both Netflix and Disney+ have the highest frequency (18 each)

20. Student's creative frequency table with at least 4 flavors and a clear mode identified

21. The mode helps us identify what is most popular or common in a data set; it's useful for making decisions about inventory, preferences, and trends; businesses use the mode to stock popular items

WORKSHEET 50

MODE IN DISTRIBUTIONS & GRAPHS

Year 5 Mathematics — Australian Curriculum v9.0

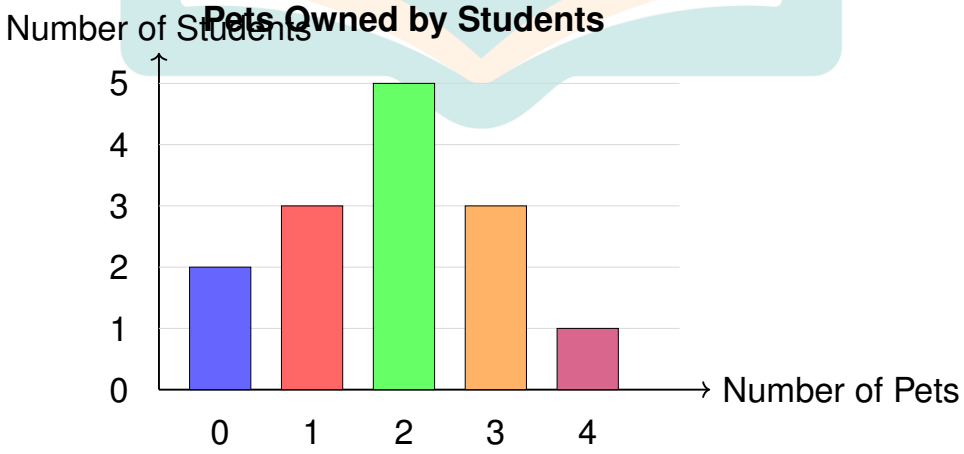
Strand: Statistics | **Sub-strand:** Data | **Code:** AC9M5ST01

Name: _____ **Date:** _____

Key Concept: The mode can be identified in graphs by finding the highest bar or most frequent category. Understanding the distribution shape helps us see patterns in data and make informed decisions.

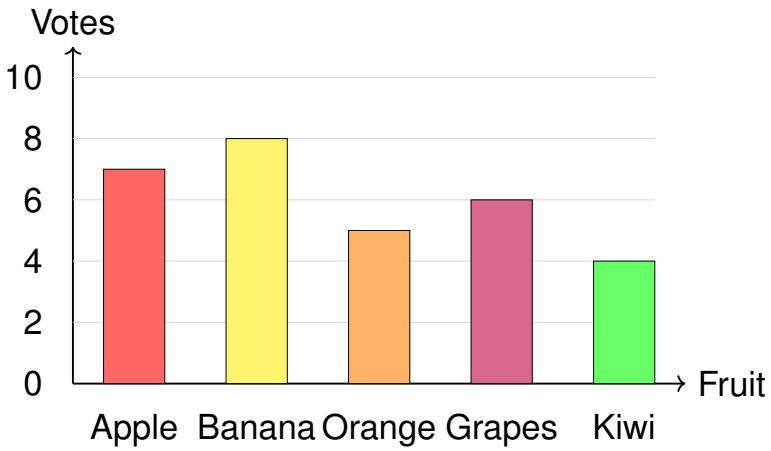
Section 1 — Fluency: Graph Mode

Question 1: Look at the column graph showing the number of pets owned by students. What is the mode?



Mode: _____

Question 2: This bar graph shows favorite fruits. Identify the mode.



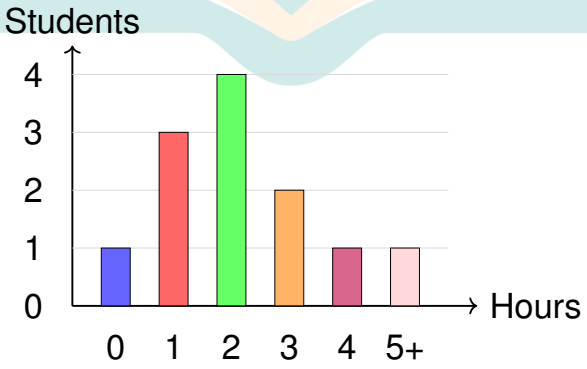
Mode: _____

Question 3: How can you identify the mode from a column graph?

Answer: _____

_____

Question 4: Look at the graph below showing hours of TV watched per day:



What is the mode number of hours?

Mode: _____

Question 5: True or False: If two bars on a graph are the same height, the

data is bimodal.

Answer: _____

Question 6: A pictograph uses symbols to represent data. If = 2 students, and Math has , Science has , and English has , what is the mode?

Mode: _____

Question 7: Why are graphs useful for identifying the mode quickly?

Answer: _____

_____

Graph Guru!

You're reading graphs like a data expert!

Joke: Why did the graph go to the party? To show off its mode-ern style!

Section 2 — Reasoning: Missing Data

Question 8: A set of numbers has a mode of 10. The numbers are: 10, 8, 7, 10, and [ ]. What number must go in the box to keep the mode as 10?

Answer: _____

Question 9: A data set is: 5, 5, 6, 7, 8, [ ]. If the mode is 5, what number(s)

could go in the box?

Answer: _____

Question 10: If a data set is: 3, 4, 4, 5, [ ], and we want to make it bimodal with modes 4 and 5, what number goes in the box?

Answer: _____

Question 11: The mode of a set is 12. Which of these could be the complete data set?

A) 10, 11, 12, 13, 14 B) 12, 12, 10, 11, 13 C) 11, 12, 11, 10, 11

Answer: _____

Question 12: A teacher recorded quiz scores: 8, 9, 8, 10, 8, 9, [ ]. If she wants the mode to be 9, what score must the last student have received?

Answer: _____

Question 13: Can you change just one number in a data set to change the mode? Give an example.

Answer: _____

_____

Question 14: If every number in a data set appears exactly twice, how many modes does the set have?

Answer: _____

Data Detective!

You're solving missing data mysteries brilliantly!

Joke: What did the detective say to the mode? "I've got my eye on you—you appear the most!"

Section 3 — Challenge: Real-World Context

Question 15: A shop sells T-shirts in sizes S, M, L, and XL. They sold:

Small: 50 Medium: 80 Large: 40 XL: 20

Why would the manager want to know the mode of the sizes sold?

Answer: _____

_____

Question 16: If every number in a data set appears only once, is there a mode? Explain.

Answer: _____

_____

Question 17: A phone store tracks which phone color sells best:

Black: 120 White: 95 Blue: 85 Red: 120 Gold: 75

a) What is the mode?

Answer: _____

b) How should the store use this information?

Answer: _____

_____

Question 18: A library wants to know which genre of books is borrowed most often. They find the mode is "Fantasy". What decisions might they make based on this?

Answer: _____

_____

Question 19: A restaurant surveys customers about their favorite meal time:

Breakfast: 35 Lunch: 85 Dinner: 120 Late Night: 25

What is the mode? Why is this important for staffing decisions?

Mode: _____ Reason: _____

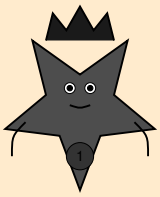
_____

Question 20: Collect data from 10 classmates about their favorite school subject. Record your results and identify the mode.

Mode: _____

Question 21: Give three real-world examples where knowing the mode would be helpful for making decisions.

1. _____
2. _____
3. _____



Mode Master Champion!

You've conquered real-world data like a true expert!

Joke: Why was the mode always confident? Because it knew it appeared the most!

Outstanding! You've completed Worksheet 50!

WORKSHEET 50
ANSWER KEY

Section 1 — Fluency: Graph Mode

1. 2 pets (the highest bar shows 5 students own 2 pets)
2. Banana (the highest bar with 8 votes)
3. You look for the tallest bar/column in the graph; the category with the highest bar is the mode
4. 2 hours (the highest bar shows 4 students watch 2 hours of TV per day)
5. True (if they are the two highest bars and equal)
6. Math (5 stars = $5 \times 2 = 10$ students, which is the highest)
7. Graphs provide a visual representation that makes it easy to see which category has the highest frequency at a glance; you can quickly compare heights without counting individual data points

Section 2 — Reasoning: Missing Data

8. Any number except 8 or 7 (if we put 8 or 7, they would appear twice and might tie with 10; any other number keeps 10 as the mode with 2 occurrences). Most acceptable answer: any number other than 7, 8, or 10
9. Any number except 5 (putting another 5 would keep it as the mode, but the question asks to keep 5 as the mode, so acceptable answers are: 6, 7, 8, or any number that doesn't appear more than twice)
10. 5 (this would make both 4 and 5 appear twice, creating a bimodal distribution)

11. B (12 appears most frequently—twice)

12. 9 (this would make 9 appear 3 times, more than 8's 3 times, making 9 the mode). Actually, 8 appears 3 times already, so to make 9 the mode, the last score must be 9 to give it 3 occurrences and create a tie, or we need it to appear more. Answer: 9 (creating bimodal) or the question implies we need another 9

13. Yes; Example: Change the data set 2, 3, 3, 4, 5 (mode is 3) to 2, 2, 3, 4, 5 (mode is now 2) by changing one 3 to a 2

14. Every number would be a mode (multimodal), or technically the data set has no single mode since all values are equally frequent

Section 3 — Challenge: Real-World Context

15. The mode is Medium (80 shirts). The manager needs to know which size sells most so they can stock more of that size; this prevents running out of popular sizes and having too many unpopular sizes in inventory

16. No, there is no mode if every number appears only once; the mode requires a value to appear more frequently than others, so all values must be equally common means there's no single "most common"

17. a) Black and Red (both sold 120, making the data bimodal)
    b) The store should stock equal amounts of Black and Red phones since they're equally popular; they might reduce inventory of Gold phones since they sell the least

18. They might: buy more Fantasy books for their collection; create a Fantasy display section; host Fantasy-themed reading events; recommend Fantasy books to new borrowers; allocate more budget to Fantasy genre purchases

19. Mode: Dinner (120 customers); Reason: The restaurant should schedule more staff during dinner time since that's when most customers come; they might also focus their menu specials and marketing on dinner service

20. Student's own data collection with mode identified

21. Student answers will vary. Examples:
    1. A shoe store knowing which size sells most to manage inventory
    2. A school cafeteria knowing the most popular lunch option to prepare enough
    3. A streaming service knowing the most-watched genre to acquire more similar content
    4. A bus company knowing the busiest route to add more services
    5. A clothing store knowing trending colors to stock more items

Incredible Achievement!

You've mastered the mode in all its forms!
From lists to graphs to real-world applications,
you're a true Mode Master!