

# Statistical Questions and Data

Lesson 8-1

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Class: \_\_\_\_\_

## Key Vocabulary Level 1 support

Picture first, then the word, then a plain-language meaning. Say each word out loud.

*"How tall are the players on the team?" → answers vary: 60 in, 63 in, 58 in, 65 in*

**Statistical Question**

A question where the answers will be different for different people.

*Player heights: 60 in, 63 in, 58 in, 65 in — four different measurements*

**Data**

Facts and numbers you collect, like answers to a survey.

*Scores 10, 12, 11 are close together (low variability); scores 2, 15, 30 are far apart (high variability)*

**Variability**

How spread out the numbers are.

*Asking 50 students 'What is your favorite sport?' and recording the answers*

**Survey**

Collecting facts by asking people questions.

*If most scores cluster in the middle with fewer at the edges, the distribution is symmetric*

**Data distribution**

How the data looks: where it sits and how spread out it is.

## Key Ideas & Notes

- You've just been hired as the data analyst for a youth basketball league.
- The head coach hands you a list of questions the staff wants to investigate about their players.
- Some questions will give you interesting data with variety, while others have just one fixed answer.
- Your job: figure out which questions are worth investigating with data.

### Think About It

- Which questions could have many different answers?
- Which questions have only one exact answer?
- What makes a question good for collecting data?

### My Notes

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## Guided Examples

### Example 1

**Which of the following is a statistical question?**

**Solution:** "How many points did each player score?" is statistical because different players will have different scores — there is variability in the data.

**Answer:** A. How many points did each player score this season?

### Example 2

**Which question is NOT a statistical question?**

**Solution:** "How many innings are in a baseball game?" has one fixed answer (9) — no variability. The other questions all produce different answers for different people.

**Answer:** A. How many innings are in a baseball game?

### Example 3

**Why is 'How many hours of sleep did each student get last night?' a statistical question?**

**Solution:** A statistical question anticipates variability — different students slept different amounts, so the data will vary.

**Answer:** A. Because different students got different amounts of sleep

# Write About the Math

The Writing Revolution

I can explain my reasoning using the words statistical question, data, variability, and survey.

## 1. Kernel Sentence subject + verb

**Model:** Statistical Question is a question where the answers will be different for different people.  
*Pregunta estadística es una pregunta cuyas respuestas serán distintas para distintas personas.*

**Write a kernel sentence about statistical question. Use a subject and a verb.**

*Escribe una oración base sobre pregunta estadística. Usa un sujeto y un verbo.*

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## 2. Sentence Expansion because · but · so

**Kernel:** Statistical Question matters in math  
*Pregunta estadística importa en matemáticas*

Expand the kernel three ways. Add a reason, a contrast, and a result.

**because**  
*porque*

**Statistical Question matters in math because \_\_\_\_.**  
*Pregunta estadística importa en matemáticas porque \_\_\_\_.*

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**but**  
*pero*

**Statistical Question matters in math, but \_\_\_\_.**  
*Pregunta estadística importa en matemáticas, pero \_\_\_\_.*

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**so**  
*entonces*

**Statistical Question matters in math, so \_\_\_\_.**  
*Pregunta estadística importa en matemáticas, entonces \_\_\_\_.*

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### 3. Sentence Types 4 ways to write a math idea

**Statement**  
*Afirmación*

Tell one true fact about statistical question.  
*Di un hecho verdadero sobre statistical question.*

**Statistical question** \_\_\_\_.

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**Question**  
*Pregunta*

Ask a question about statistical question.  
*Haz una pregunta sobre statistical question.*

**How does** \_\_\_\_ ?

*¿Cómo* \_\_\_\_ ?

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**Exclamation**  
*Exclamación*

Show excitement about statistical question.  
*Muestra entusiasmo sobre statistical question.*

**Wow,** \_\_\_\_ !

*¡Guau,* \_\_\_\_ !

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**Command**  
*Mandato*

Tell a partner what to do with statistical question.  
*Dile a un compañero qué hacer con statistical question.*

**First,** \_\_\_\_ .

*Primero,* \_\_\_\_ .

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### 4. Explain Your Reasoning use a sentence starter

**A statistical question has** \_\_\_\_.

*Una pregunta estadística tiene* \_\_\_\_.

**This question is / is not statistical because** \_\_\_\_.

*Esta pregunta es / no es estadística porque* \_\_\_\_.

**I would collect data about** \_\_\_\_.

*Recogería datos sobre* \_\_\_\_.

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## Try It

Solve on your own. Check the answer key when you are done.

**1. A coach asks: "How many hours does each athlete on the track team sleep the night before a meet?" Why is this a statistical question?**

- A. Because the answers will vary from athlete to athlete
- B. Because it is about sports
- C. Because it has a numerical answer
- D. Because the coach asked it

Show your work:

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**2. Match each question with what makes it statistical or not.**

Show your work:

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### Stretch Your Thinking

Level 2 enrichment

Challenge task — explain your reasoning in full sentences.

**Write one statistical question and one non-statistical question about your school's cafeteria. Explain why each question is or is not statistical, and describe what the data would look like for the statistical question.**

*Sentence starter: Statistical question: \_\_\_\_\_. This is statistical because \_\_\_\_\_. The data might look like: \_\_\_\_\_.*

*Non-statistical question: \_\_\_\_\_. This is not statistical because \_\_\_\_\_.*

Show your work:

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## Reflect — Exit Ticket

**Which question is a statistical question? A) How many students are in the school? B) How many hours does each student in 6th grade exercise per week? C) What time does school start? D) How many days are in a week?**

A. B) How many hours does each student exercise per week?

B. A) How many students are in the school?

C. C) What time does school start?

D. D) How many days are in a week?

Your answer:

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## Answer Key & Teacher Guide

1. **Try It 1:** A. Because the answers will vary from athlete to athlete — *A statistical question anticipates variability. Different athletes sleep different amounts, so the data collected will vary.*
2. **Try It 2:**
3. **Exit Ticket:** A. B) How many hours does each student exercise per week? — *"How many hours does each student exercise per week?" is statistical because different students exercise different amounts — the data has variability.*

### Writing (TWR) — what to look for

- **Kernel sentence:** A complete sentence needs a subject and a verb. Example: Statistical Question is a question where the answers will be different for different people.
- **Expansion:** *because* gives a reason, *but* shows a contrast or exception, *so* shows a result. Answers vary; each must keep the kernel idea and add the correct kind of detail.
- **Sentence types:** Statement ends with a period, question with "?", exclamation with "!", and a command starts with an action verb (a "bossy" verb).