6TH GRADE ROCKS

Warm Up
Feb. 15, 2019

1) Write the following numbers in words (how you read it)

   a) 0.023 467

zero and twenty-three thousandths four hundred sixty-seven millionths

   b) 2 600 701 211

two billion six hundred million seven hundred one thousand two hundred eleven

2) Use <, > or = to answer the following (Show work when you can)

a) $-4 \boxed{>} -7$

   Bigger

b) $+5 \boxed{>} -6$

c) $\frac{4}{5} \boxed{<} \frac{7}{8}$

$\times 8$ $\times 5$

$\frac{32}{40}$ $\frac{35}{40}$

3) Brain teasers (Try and figure out the saying)

MOONCEON
once in a blue moon

HE ARTED
half hearted

R
O
ROADS
D
S
Cross roads

NEAFRIENDED
A friend in need

QUITE
Quite right

YOUR TIME
Your time is up

LESSON

1

Using a Questionnaire to Gather Data

Electronic games are popular among Grade 6 students.
Store owners want to know which games to stock.
Which electronic games do students in your class like to play?

Which game do you like to play?

☐ GTA ☐ Solitaire
☐ NHL 19 ☐ Roblox

Other: _____

SP1 Create, label and interpret line graphs to draw conclusions. [C, CN, PS, R, V]

SP2: Select, justify and use appropriate methods of collecting data, including: • questionnaires • experiments • databases • electronic media. [C, PS, T]

SP3 Graph collected data and analyze the graph to solve problems.

SP4 Demonstrate an understanding of probability by: • identifying all possible outcomes of a probability experiment • differentiating between experimental and theoretical probability • determining the theoretical probability of outcomes in a probability experiment • determining the experimental probability of outcomes in a probability experiment • comparing experimental results with the theoretical probability for an experiment.

SCO: **SP1: Create, label and interpret line graphs to draw conclusions.**
    [C, CN, PS, R, V]

[C] Communication	**[PS]** Problem Solving	**[CN]** Connections	**[ME]** Mental Math
[T] Technology	**[V]** Visualization	**[R]** Reasoning	and Estimation

Scope and Sequence of Outcomes

Grade Five	Grade Six	Grade Seven
SP2 Construct and interpret double bar graphs to draw conclusions.	**SP1** Create, label and interpret line graphs to draw conclusions.	**SP3** Construct, label and interpret circle graphs to solve problems.

SCO: **SP2: Select, justify and use appropriate methods of collecting data, including:**
    • **questionnaires**
    • **experiments**
    • **databases**
    • **electronic media.**
    [C, PS, T]

[C] Communication	**[PS]** Problem Solving	**[CN]** Connections	**[ME]** Mental Math
[T] Technology	**[V]** Visualization	**[R]** Reasoning	and Estimation

Scope and Sequence of Outcomes

Grade Five	Grade Six	Grade Seven
SP1 Differentiate between first-hand and second-hand data.	**SP2** Select, justify and use appropriate methods of collecting data, including: questionnaires; experiments; databases; electronic media.	**SP3** Construct, label and interpret circle graphs to solve problems.

SCO: **SP3: Graph collected data and analyze the graph to solve problems.**
    [C, CN, PS]

[C] Communication	**[PS]** Problem Solving	**[CN]** Connections	**[ME]** Mental Math
[T] Technology	**[V]** Visualization	**[R]** Reasoning	and Estimation

Scope and Sequence of Outcomes

Grade Five	Grade Six	Grade Seven
SP2 Construct and interpret double bar graphs to draw conclusions.	**SP3** Graph collected data and analyze the graph to solve problems.	**SP3** Construct, label and interpret circle graphs to solve problems.

Explore

Conduct a survey to find out
which electronic game is most popular
in your class.

Plan a survey. Write a question to ask.
Collect data from your classmates.
Record your results in a table.
Which electronic game is most popular?
How do you know?

Show and Share

Share your results with another group.
How did your questions compare?
Do you think your results would be the same if you asked the
same question in another Grade 6 class? In a class in another grade? Explain.

Guidelines for writing questions for a questionnaire

1) The question should be understood in the same way by all people

Ex) Do you eat a lot of junk food?

People may interpret "a lot" differently. Also some may view different things about junk food. JUNK can be viewed as negative and people won't want to admit to it.

A better question....

How often do you eat pop, chips or candy? (Check one of the following)

___Never, ___1-2 times a week,___ more than 3 times a week

2) Each person should find an answer since you either give them multiple choices or a blank to express their own choice.

3) The questions should be fair. Meaning it should not contain statements that could influence a certain answer. If it does then it is a biased question.

Example of biased)

 Junk food is know to cause obesity, heart disease and poor dental health. How often do you eat junk food?_____

This question provides extra information that might lead a person to answer a certain way

"I think your test grading is biased in favor of students who answer the test questions correctly."

Determine if the survey is

Biased or **Unbiased**

- People attending a football game were asked what their favorite sport was. **Biase (all will say football)** → si@ that game
- Orchestra students were asked if more money should be spent on the athletics programs. **Biased asked to whole school**
- All 1st period students were asked where they want to go to college. **Unbiased (variety of people)**
- People standing in line to see the latest Twilight series movie were asked what their favorite type of movie was. **Biased**
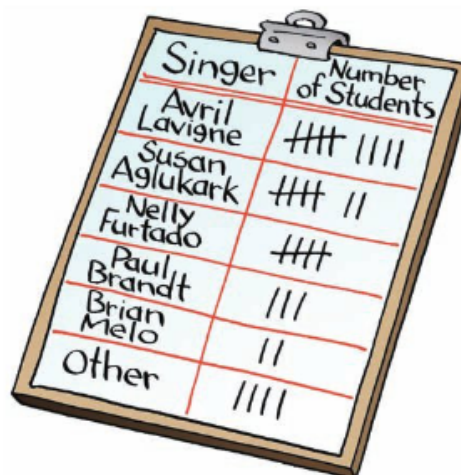
Not a variety

Example of a fair question

Mia wanted to find out which Canadian singer her classmates like best.
She handed out a questionnaire. She asked this question:

Who is your favourite Canadian singer:
Avril Lavigne _____, Susan Aglukark _____,
Nelly Furtado _____, Paul Brandt _____,
Brian Melo _____, or Other _____?

Mia recorded the results in a tally chart.
Mia concluded that Avril Lavigne was the
most popular singer of those named.
Mia's question was a fair question.
She did not give clues about her own
preference, nor did she try to influence a
person's answer.

Singer	Number of Students
Avril Lavigne	卌 IIII
Susan Aglukark	卌 II
Nelly Furtado	卌
Paul Brandt	III
Brian Melo	II
Other	IIII

Class/Homework

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#1a,b

#2abc

#4b,c

#5
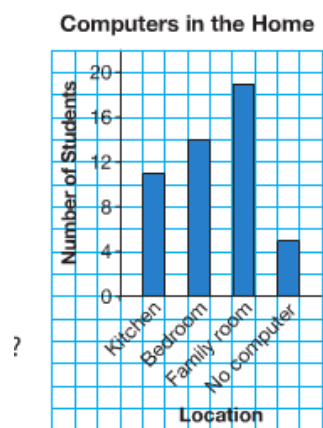
#7 (if time permits)

#8 (if time permits)

Practice

1. Design a questionnaire for collecting data to answer each question.
   Give at least 4 possible answers for your question each time.
   a) What is the favourite food of Grade 6 students?
   b) What is the favourite pet of students in your school?
   c) Who is the favourite athlete of people in your province or territory?

2. This graph shows the results of a questionnaire.
   a) Write what the question might have been.
   b) Can you tell how many students were given the questionnaire? Explain.
   c) Write 2 things you know from this questionnaire.

Computers in the Home

?

3. Think of a questionnaire you could hand out
   in your school.
   a) Write a question you could ask.
   b) How do you know if your question is a fair question?

4. Each question (written in italics) can be improved.
   Write a better question for each. Explain why you think it is better.
   a) To discover how much time each person spends doing homework each day:
      Do you spend a lot of time each day doing homework?
   b) To find out how students get to school:
      Do you usually walk to school or ride your bike?
   c) To find out the favourite type of TV programs:
      Do you prefer to watch mindless comedies or exciting dramas?

5. Ariel wanted to find out what the Grade 6 students in her school wanted to be when they left school. She wrote this question.

> What do you want to be when you leave school? Check one.
>
> Astronaut ☐   Designer ☐   Mechanic ☐   Nurse ☐

Ariel gave this question to the 76 students in Grade 6. Forty-five people answered the question. Here are the results.
Ariel concluded that most students will become astronauts or designers when they leave school.

a) Is Ariel's conclusion valid? Explain.

b) What might Ariel have done to improve her question?

Occupation	Boys	Girls
Astronaut	⊞⊞ ⊞⊞	⊞⊞ III
Designer	⊞⊞	⊞⊞ ⊞⊞ I
Mechanic	III	I
Nurse	II	⊞⊞

6. Two people want to open a shoe store at the local mall.
   They want to know what types of shoes they should stock.
   a) How could a questionnaire be helpful?
   b) Design a questionnaire the people could use to help them
      make the best decision.

7. What is your classmates' favourite way of keeping in touch with their friends?
   a) Make a prediction.
   b) Design a questionnaire you could use to find out.
   c) Ask the question. Tally the results.
   d) How did the results compare with your prediction?

8. What is the favourite type of music of students in your class?
   a) Design a questionnaire you could use to find out.
   b) Predict the results of your questionnaire.
   c) Ask the question. Record the results.
   d) How did the results compare with your prediction?
   e) What else did you find out from your questionnaire?

Write a better question:

1. Do you get a lot of sleep on school nights? ☐ Yes   ☐ No

2. What is your favorite reality shows?

☐ Survivor   ☐ The Amazing Race

3. Do you prefer greasy potatoes or healthy carrots?