

Mathlete: The Costs of Playing Sports



GRADE
5

Participating safely in organized sports often requires that players use specialized equipment or uniforms. In this lesson, students compare the costs associated with a variety of these sports and graph the results. Students then consider ways families can stay fit without spending a lot of money.

Subject

Mathematics

Suggested Timing

40 minutes

Financial Literacy Objectives

At the end of this lesson, students will:

- use financial symbols and terminology;
- make simple financial decisions for simulated situations for amounts up to \$1,000;
- conduct simulated purchases for amounts up to \$1,000;
- identify reasons to save money.



Curriculum Expectations

Mathematics, Grades 1-8 (2005)

Mathematics

Number sense and numeration

- Read and print in words whole numbers to ten thousand, using meaningful contexts.
- Solve problems that arise from real-life situations and that relate to the magnitude of whole numbers.
- Solve problems involving the addition, subtraction, and multiplication of whole numbers.
- Add and subtract decimal numbers to hundredths, including money amounts, using concrete materials.



Assessment

Collect: Student worksheets (Appendix B)

What You Need

- Pencil crayons, ruler
- Examples of bar graphs (see Appendix A)
- Graph paper
- Student copies of worksheets (Appendix B):
 - Hockey Player Equipment Costs
 - Soccer Player Equipment Costs
 - Basketball Player Equipment Costs
 - Ballet Dancer Equipment Costs
 - Swimmer Equipment Costs

Minds On

Ask students to describe various sports and/or physical activities that they enjoy, especially those requiring safety equipment or specialized dress or uniforms.

Record student responses on chart paper or board.

Select one sport from the answers provided. To add variety to the lesson, select a sport for this teacher-directed example that is not included on the worksheets. Additional sports could include lacrosse, gymnastics, fencing, judo, skateboarding, football, baseball, or snowboarding.

Choose a sport and draw a stick figure on the board. Have student volunteers draw the equipment needed for that sport on the figure. Explain to students that the items required to play this sport cost money. Provide approximate costs for the equipment they have drawn by labelling those costs on the figure. Add up the total together.

Explain that in today's lesson students will be comparing the costs of different sports that require equipment, and that they will then organize their data into bar graphs to analyze fees and expenses associated with different sports.



Action

Instruction:

- On a data projector or on chart paper, show students examples of several bar graphs (example: favourite ice cream flavours – Appendix A). Ask students to interpret the representation.
- Encourage students to generate conclusions about what aspects of a bar chart make it useful.
- Conduct a quick survey to determine a class preference (e.g., favourite ice cream or pet) to help teach the value and purpose of a graph.
- Describe and show where to place information on the x and y axes.
- Explain that students will be developing their own bar graphs using information that they will have calculated about the costs of five sports (hockey, soccer, basketball, swimming, and dancing).

Activity: Making Graphs

- Distribute worksheets for hockey, soccer, basketball, ballet, and swimming, as well as one sheet of graph paper per student (see worksheets in Appendix B).
- Help students add up the equipment costs of each sport.
- Using the totals from the worksheets, have students create a bar graph showing the cost of each sport: hockey, soccer, basketball, swimming, and dancing.
- Remind students to use the x axis to show the five different sports. Suggest that students use the y axis to show the cost amounts in increments of \$50.
- Explain that while league and membership fees are explained on the worksheets, students will be graphing equipment costs only.
- Have students colour in the bars of their graph and explain that this technique can be used to improve the readability of the graph.
- Optional - have students produce the graph using a computer.

Consolidation/ Debrief

Gallery Walk

Display a variety of student graphs on the classroom walls and encourage a gallery walk around the room.

Rank the sports investigated by the class from most expensive to least expensive.

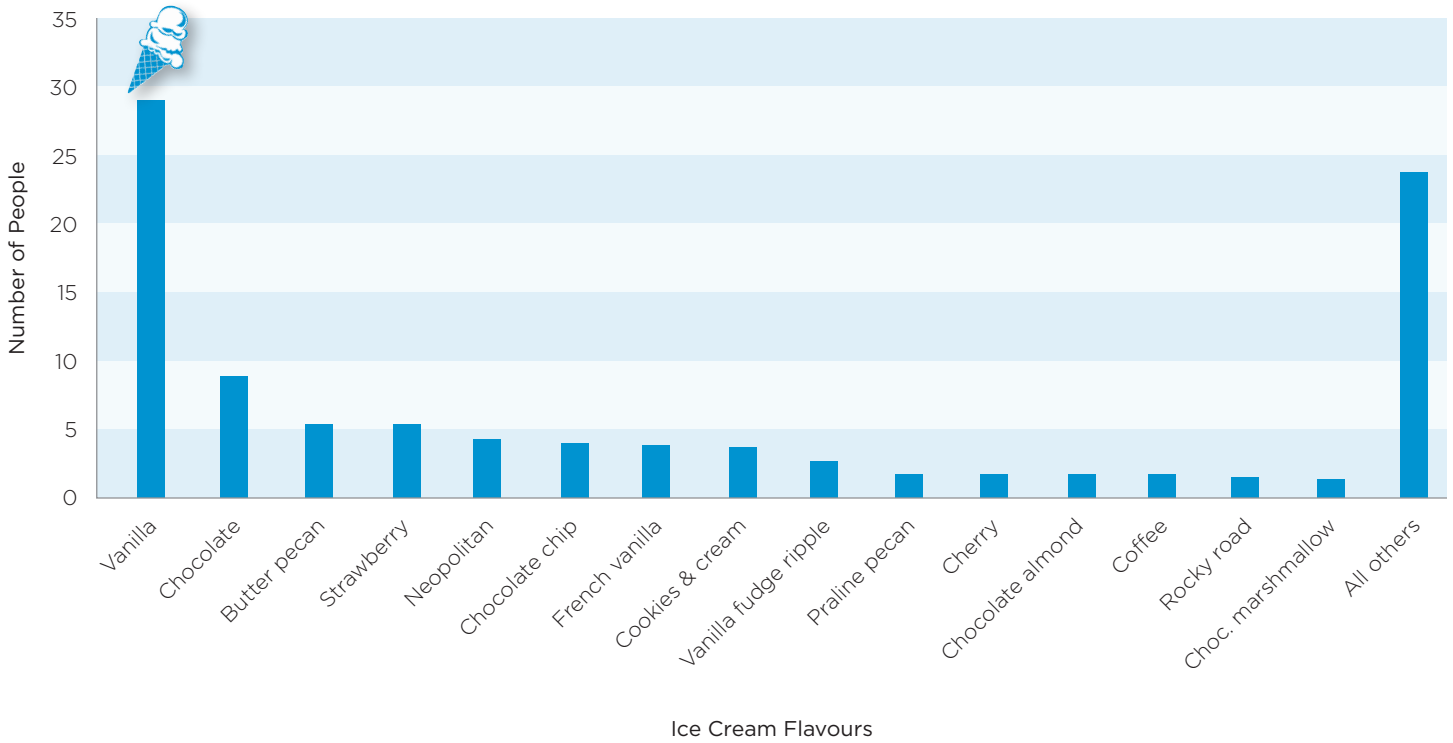
Discuss the questions below as a class:

1. Should the cost of a sport or activity determine whether or not someone is able to participate? Explain.
2. How can a school or community organization help those in need participate in an expensive sport?
3. Think of *three ways* by which families can keep fit without spending any money.
4. The cost of a sport or activity could also be an investment. Why?



Sample Graph

**Favourite Ice Cream Flavours
(Based on 100 People Surveyed)**





The Cost of Playing Hockey



Shoulder pads	\$	49
Elbow pads	\$	20
Under garments	\$	25
Practice jersey	\$	25
Hockey pants	\$	69
Shin guards	\$	19
Hockey socks	\$	10
Skates	\$	100
Skate guards	\$	5
Helmet	\$	59
Mouth guard	\$	19
Throat protector	\$	14
Athletic cup	\$	19
Hockey gloves	\$	49
Hockey stick	\$	22
Hockey puck	\$	5
Hockey bag	\$	35

What is the total cost for hockey equipment? **\$**



Other costs

League Membership \$300 - 1,000 + Tournament costs
+ Travel



The Cost of Playing Soccer



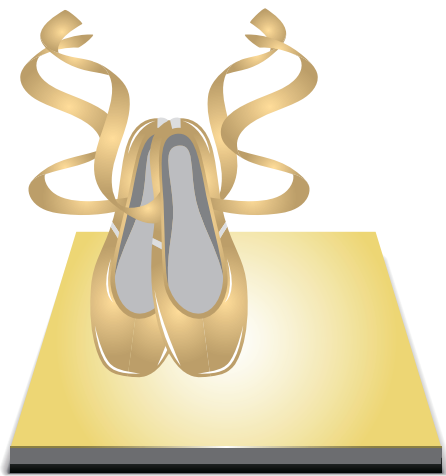
Soccer ball	\$	22
Shin guards	\$	21
Shorts	\$	10
Jersey	\$	15
Socks	\$	14
Gloves (only for goalies)	\$	19
Cleat shoes	\$	24
Athletic support	\$	20
What is the total cost for soccer equipment?	\$	



Other costs

Where are you going to play? There may be League memberships (\$75+) and tournament costs (\$25+).

The Cost of Ballet



Ballet shoes	\$	25
Leotard	\$	24
Tutu	\$	35
Skirt	\$	19
Ballet tights	\$	14
Warm-up leggings	\$	18
What is the total cost for ballet equipment?	\$	



Other costs

Dance lessons cost about \$10 per lesson + cost to participate in a dance recital (\$60) + recital costume (\$75+).



The Cost of Playing Basketball



Basketball	\$	20
Shorts	\$	13
Jersey	\$	20
Running shoes	\$	35
Socks	\$	5
Athletic cup	\$	20
What is the total cost for basketball equipment?	\$	



Other costs

Where are you going to play? Recreational centres and health clubs may charge entrance fees.

The Cost of Swimming



Goggles	\$	15
Nose plugs	\$	7
Towel	\$	10
Swim cap	\$	10
Bathing suit	\$	25
What is the total cost for swimming equipment?	\$	



Other costs

Cost for swimming lessons fees. Recreational centres and health clubs may charge entrance fees.