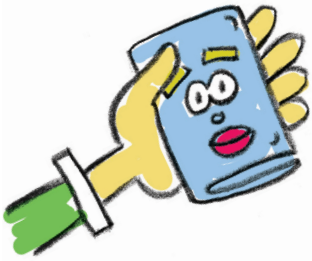


Duct Tape Wallet: Math Edition



GRADE
4

In this lesson, students will calculate the amount and cost for duct tape needed for the entire class to make duct tape wallets. (This lesson should be used along with the Art lesson, Duct Tape Wallet.)



Subject Mathematics

Suggested Timing 40 minutes

Financial Literacy Objectives At the end of this lesson, students will:

- develop vocabulary related to money (e.g., bills, currency, coins).

Curriculum Expectations

Mathematics, Grades 1-8 (2005)

Mathematics

Number Sense and Numeration

- Read and represent money amounts to \$100 (e.g., five dollars, two quarters, one nickel, and four cents is \$5.59).
- Multiply to 9×9 and divide to $81 \div 9$ using a variety of mental strategies (e.g., doubles, doubles plus another set, skip counting).
- Use estimation when solving problems involving the addition, subtraction, and multiplication of whole numbers to help judge the reasonableness of a solution. (Sample problem: A school is ordering pencils that come in boxes of 100. If there are 9 classes and each class needs about 110 pencils, estimate how many boxes the school should buy.)

Measurement

- Describe, through investigation, the relationship between various units of length (i.e., millimetre, centimetre, decimetre, metre, kilometre).
- Select and justify the selection of the most appropriate standard unit (i.e., millimetre, centimetre, decimetre, metre, kilometre) to measure the side lengths and perimeters of various polygons.

Assessment

Collect: Calculating Lengths and Costs (Appendix A)

What You Need

- Calculating Lengths and Costs Worksheet (Appendix A)
- Optional: calculator

Minds On

Students have their wallets from the recent art activity, Duct Tape Wallet, on their desks (see Duct Tape Wallet lesson plan for details).

Lead a discussion about the materials and procedures that students used to create their wallets.

Action**Problem Solving**

Provide students with this problem: a teacher in another class wants to do this duct tape wallet activity. She needs to know how much it will cost, and what she needs to purchase or have on hand.

As a large group, have students brainstorm a list of materials needed to replicate the duct tape wallet activity.

Introduce the concept of estimation, and provide examples of how to round to whole numbers. Have students discuss both the benefits and disadvantages of rounding.

Review concepts of measurement, especially converting from mm to cm to m.

Distribute worksheet and provide students with enough time to complete the cost estimates.

**Consolidation/
Debrief**

In table groups, have students compare their responses.

Have students submit their worksheets for assessment.

Ask critical questions to engage students in further reflection and understanding of the concepts:

- Why are some measurements in cm and some in m?
- The label on the duct tape says that the roll is 20 yards or 18 m long. Why are there 2 measurements? What do we know about the term “yards”? (Explain to students – In North America, we use metric measurements, but there are other parts of the world that use imperial measurements. A yard is an imperial measurement. If the duct tape is sold in different countries, then the manufacturer will put different types of measurements on the label.)
- If faced with an unfamiliar measurement, such as 1 yard, how can you go about figuring out what it means?
- How is math useful in helping us solve problems?

Duct Tape Wallet: Math Edition

Calculating Lengths and Costs

Name: _____

To create 1 wallet, how many centimetres of duct tape do you need?

Materials to Make 1 Wallet	Length of Duct Tape Needed (cm)
10 strips of duct tape 17.75 cm long	
3 strips of duct tape 15 cm long	
TOTAL NEEDED FOR 1 WALLET	

If one roll of duct tape is 18m long, and costs \$5.99:

a) How many metres of duct tape are needed in order for each member of the class to make one wallet?
Show your work in both metres and centimetres. You may round to whole numbers.

b) How many rolls of duct tape does the class need to ensure that 20 students can make wallets?
You may round to whole numbers.

c) How much will it cost to buy enough duct tape for the class? You may round to whole numbers.