

AGENDA

- Starter
- The Two-Foot Race Revisited
- Get Out the Scale
- Add Them Up
- Conclusion
- Student Assessment

Objectives

Students will recall and review the problem solving process.

Students will identify ways to evaluate the pros and cons of different options.

Students will list pros and cons and weigh options in order to choose the best solutions to problems.

Materials Needed

- List of options from the previous lesson (Part I)
- Copies of the "How Could I Do This?" activity sheet for students who may have been absent during the previous lesson (Part III)
- One copy of the "Find Solutions" activity sheet for each student (Part III)

Starter (3 minutes)

Present a brainteaser for students to solve. Say, "Last week, I bought a new coat and a hat, and paid \$150 total. The coat cost \$100 more than the hat. How much did the hat cost?" Give students a minute to work together and think of a solution. (Students should say that the coat cost \$125 and the hat cost \$25.)

Ask students to explain why the hat could not have cost \$50. (Students should say that if the hat were \$50, then the coat would have cost \$100—only \$50 more than the hat.) Explain that most students probably had to work through a few combinations before they came up with one that worked. Tell students that most problems require thought, just like this brainteaser. Explain to students that in this lesson they are going to continue talking about how to solve difficult problems.

• Part I The Two-Foot Race Revisited (10 minutes)

Purpose: Students recall and review the problem solving process.

1. Students recall the race from the previous lesson.

Ask students to recall the race from the previous lesson. If necessary, use questions such as the following to prompt their thinking and guide the discussion:

- What was the problem that needed to be solved in order to successfully complete the race?
- How did the winning team solve the problem?
- Were other methods or options considered? If so, what were they?
- Write student responses on the board. Quickly check through your list of options from the last lesson and prompt students to add those that have not been mentioned. Ask students to identify the option they thought was the best solution to the problem.

2. Students review the problem solving process.

Discuss each option. Ask students to give reasons why they chose one option over another. Point out that they have just completed a very important step of the problem solving process—they considered the pros and cons of each option before identifying a winning solution.

Have students list the steps of the decision making and problem solving process, which they noted in the last lesson. Students should list the following:

- 1. Gather information.
- 2. Identify as many options as possible.
- 3. Weigh the pros and cons of each option.
- 4. Make a decision.

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Circle numbers three and four on the board, and tell students that they will focus on these steps during the rest of this lesson.

Part II Get Out the Scale (15 minutes)

Purpose: Students identify ways to evaluate the pros and cons of different options.

1. Students recall what they know about pros and cons.

Write the following words and symbols on the board: "pros +" and "cons –." Ask students to define "pros" and "cons." (Students might respond: pros are positive factors or reasons for something; cons are negative factors or reasons against something.)

Discuss why it is important to consider pros and cons for options. If necessary, remind students that when they consider the pros and cons for options, they are weighing the options in order to determine their positive and negative aspects.

2. Students brainstorm pros and cons.

Indicate the list of options on the board, and ask students to give both the positive and negative aspects for each one. After each suggestion, ask if students can think of any others. Keep count of the number of pros and cons suggested by using + and – symbols after each option. For example, while discussing the option of having teammates stand on each other's feet as they walk across the room, you might mark two + symbols to represent pros such as the following:

- It would satisfy the rule for the race.
- It would be challenging to do or fun to try.

You might mark four – symbols to represent the following cons:

- It would be very difficult to get across the room quickly.
- It would be difficult for teammates to keep their balance.
- It could hurt the teammate whose feet are being stood upon.
- The team would probably lose the race.

3. Students weigh pros and cons.

When your list is complete, ask students to identify the option that has the most pros and the fewest cons. (The winning option will probably be the one in which only one student crosses the floor, because it is most likely to have no – symbols.)

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Acknowledge that in this case, the pros and cons are easy to identify. Explain that sometimes the problem is more difficult to solve because the options are not easy to identify and the pros and cons are not so obvious. Ask students what they might do in such a case. (Students mightrespond: ask for help from someone who has experienced the problem, consult a trusted adult.)

• Part III Add Them Up (20 minutes)

Purpose: Students list pros and cons and weigh options in order to choose the best solutions to problems.

1. Students review their lists of options.

Have students take out their completed "How Could I Do This?" activity sheets from the previous lesson. Pair students who were absent with students who completed the activity sheet.

Ask students to look over both problems and the options they listed on the activity sheet. Tell them to cross out any options that are completely unrealistic.

2. Students write pros and cons.

Distribute copies of the "Find Solutions" activity sheet. Explain that students will use this activity sheet to write reasons for and against the options they listed on the "How Could I Do This?" activity sheet.

Tell students to list reasons for and against their options for both problems. Point out the column in which they should mark a + symbol if the reason is a pro and a – symbol if the reason is a con. Remind students to weigh options by adding up the + and – symbols, and then circle the best solution for each problem.

Circulate among students as they work, offering suggestions or assistance where needed.

3. Students share solutions.

Ask students to share their solutions to the first problem. If time permits, encourage them to review how they made this decision or why they decided against another option.

Ask students to share their solutions to the second problem. Have them identify the biggest obstacle they needed to overcome in order to find a solution. Ask students if considering pros and cons helped them arrive at a solution they think could work well.

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Conclusion (2 minutes)

Ask students to explain why considering pros and cons is helpful when solving difficult problems. Elicit from students the following **key points** that were taught in this lesson:

- When solving difficult problems, make a list of your options.
- Take the time to think through pros and cons for each option, and then weigh them before deciding on the best solution.

Student Assessment

- 1. How can writing a pro/con list help you make a decision?
- Think of a problem you're currently facing, and write down five options you have for solving it. Write a pro/con list for each of the five options. At the end of each pro/con list, indicate which option you would pursue.

LESSON EXTENSIONS

Using Quotations

"He who builds according to everyone's advice will have a crooked house."

Discuss this quote as a class. Invite students to draw an illustration inspired by the quote. Have students share their drawings with the class.

Addressing Multiple Learning Modes

Have students create a plan for a community park that has been allotted only a limited amount of space.

Have students describe the pros and cons of the park, its location, and its layout.

Writing in Your Journal

Have students think of a problem that doesn't have an easy solution. Have them make a list of options for solving this problem.

Discuss what students should do based on their lists. Ask students if they think they can trust their lists.

Using Technology

Pick a current controversial news story. Have students follow the story by watching, listening to, or reading the news for one week.

Have students list and weigh the pros and cons for each of the views surrounding this story. Have them share their work in small groups.

Homework

Ask students to interview workers about the pros and cons of their jobs.

Have students discuss the pros and cons of each job and identify the jobs they like best.

Additional Activity ____

As a class, discuss the qualities that real friends should possess. Select a character from a TV show. Create a pro and con list for the character's friendships. Discuss how evaluating friendships can be useful in real life.

FIND SOLUTIONS

List pros and cons for each option you listed on your "How Could I Do This?" activity sheet. Mark a + or – sign after each one. Then, find the option with the most + signs and the fewest – signs, and circle your solution.

PROS AND CONS PROBLEM 1 OPTIONS		PROS AND CONS PROBLEM 2 OPTIONS	
	+ or –		+ or –



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