

Problem, Evidence, Solution, Results (Star Gazers) Practice Activities

Space Age Workouts: How Astronauts Stay in Shape

In space, an astronaut glides, floats and turns effortlessly, free from the continual pull of gravity on Earth. But did you know that moving about so easily is actually hard on the human body? In microgravity, there's no resistance and that's a problem. Without resistance, astronauts can quickly become weak because of bone and muscle loss. Astronauts who spend months in space, such as International Space Station crews, are even more at risk.

Researchers have found the solution to this problem is old-fashioned, but space-friendly exercise. Astronauts work up a sweat two to three hours a day using equipment specially designed for microgravity. Astronauts pedal stationary cycles called ergometers. These machines can track heart rate, and measure how hard the astronaut is exercising.

Walking is one of the best exercises for keeping bones and muscles in good condition, on Earth and in space. A treadmill provides a convenient way for astronauts to log miles. Astronauts wear harnesses in order to stay on a treadmill, not float above it!

Strength training helps prevent bone and muscle loss, too. Instead of power lifting with heavy weights, astronauts exercise with elastic bands attached to pulleys to get the resistance their bones and muscles need.

All this exercise pays off. Astronauts stay strong and healthy while in space. They enjoy a smoother return to Earth and its gravity, too.

First, think about what you already know about astronauts, exercise, and space travel. After you finish thinking, read the passage "Space Age Workouts: How Astronauts Stay in Shape."

Next, answer the following questions:

1. What is the problem in this passage?
2. What is the evidence for this problem?
3. What is the solution to this problem?
4. What are the results of this solution?
5. What are the signal words the author used?

Finally, create a "Problem-Solution Graphic Organizer" that helps you visualize the different parts of this passage. This will help you remember the author's main points as you read.

Compare your answers with **Natalie's Think Aloud and Graphic Organizer**.

Problem Solution Text Structure

- A style of writing in which the author identifies one or more problems and offers one or more solutions to the problems.

Question Answer Format

- A style of writing in which the author poses a question and then takes the time to answer it.

Problem Solution Signal Words

- In order to identify a problem or question within the text, the author may use a **specific signal word such as: problem, puzzle, question, or dilemma.**
- In order to offer a solution to a problem or answer to a question within the text, the author may use a **specific signal word such as: solution, one answer, solve, one reason, or puzzle solved.**

Problem Solution Graphic Organizer

- A type of Graphic Organizer that allows the reader to visualize the text structure being used by the author. **In this type of diagram a chain of four boxes is presented to the reader.** These boxes are organized in a sequence of events:
 - **The first box in the sequence is labeled "Problem."** This box highlights the problem described in the text.
 - **The second box in the sequence is labeled, Evidence."** This box lists the evidence to support the statement of the problem.
 - **The third box in the sequence is labeled, "Solution."** This box lists the ideas presented to solve the problem.
 - **The fourth, and last, box in the sequence is labeled, "Result."** This box describes what will happen if someone implements one or more of the proposed solutions.

Turning "Old" to "Gold"? Recycling Your Cell Phone

A new cell phone with the latest technology may grab your attention, but what happens to the old phone you're replacing? If you're like 90% of people, the old cell phone may be tossed in a drawer or a garbage can. Eventually, it will end up in the landfill. With an estimated 3.3 billion cell phone users worldwide, that's where the big problem arises. Cell phones and chargers contain a dangerous mix of toxic materials that can poison the water, soil and air.

The pollution solution is recycling your old cell phone. Many wireless service providers collect used cell phones, then refurbish or recycle them. The proceeds are used to provide calling cards, phones, or even cash to different causes. Nonprofit organizations may also collect old cell phones and chargers. For example, through one charity, your recycled cell phone helps provide a calling card to a soldier serving overseas. Through other charities, it may help fund a school art program in New York City, or an animal shelter in New Orleans. An internet search on cell phone recycling will give you ideas about where to take or send your old cell-phone. On some sites, you can even choose the charity you'd like to help.

First, think about what you already know about cell phones. After you finish thinking, read the passage "Turning 'Old' to 'Gold' Recycling Your Cell Phone".

Next, answer the following questions:

1. What is the problem in this passage?
2. What is the evidence for this problem?
3. What is the solution to this problem?
4. What are the results of this solution?
5. What are the signal words the author used?

Finally, create a "Problem-Solution Graphic Organizer" that helps you visualize the different parts of this passage. This will help you remember the author's main points as you read.

Challenge yourself by thinking of a topic that has a problem needing to be solved. Create a "Problem-Solution Graphic Organizer" to show how the problem, evidence, solution, and results are all connected.

Compare your answers with **Adrienna's Think Aloud and Graphic Organizer**.