False Assumptions Can Get You In Trouble!

Materials

- Overhead projector (preferable, not required)
- Short "stories" of events which tend to be misinterpreted due to our tendency to attach certain meanings to words. These are best printed in large letters on overhead transparencies for projection so the entire class can read them.

Procedure

1. Explain to students that you are going to display a short story on the overhead, and read it to them as they read along. Point out that their challenge is to solve the mystery, but they can only ask questions (one at a time) which can be answered with a "yes" or "no", and you will answer those questions truthfully.

2. Show and read the first story. Keep the "Answer" and "False Assumption" covered. Answer their yes/no questions until someone asks the key question (the answer, phrased as a yes/no question), and you will answer "yes".

3. When it is solved, ask the class what the false assumption was. Tell the class to jot down examples of false assumptions which they/we make in our daily lives, to share with the class later. Also, ask them to think about (and record) what kinds of false assumptions scientists have made, the problems this created, and how they solved the problems. An example of this might be the assumption that the sun moves around the earth, resulting in the construction of complex orbits of planets and moons to explain their observed motions, all based on an earth-centered system. Proposing that the sun might be at the center enabled early astronomers to construct much simpler orbits. Similar stories exist for the assumed causes of disease, behaviors, weather, etc. Things are not always as they seem! "Perception is NOT always REALITY!" (tipping your hat to Mercedes Benz). I made large banner of that "Perception..." quote and posted it in my room. Amazing how many times arose when I conspicuously and knowingly glanced over to the poster....

4. Point out that one of the strategies of science is to recognize how easy it is to make false assumptions about the workings of nature, and to devise methods for avoiding or revealing those false assumptions for what they are. This often requires a total paradigm shift...a different way of looking at the situation, in which common assumptions
are critically challenged, on purpose. Encourage your students to "think outside the box" and be cleverly creative.
Story #1

There is a cabin on the side of a mountain. Three people are inside and they are dead. How did they die?

Story #2

It is a hot August afternoon. The location is the living room in an old Victorian mansion. The 7-foot window is open and the curtains are blowing in the breeze generated by the thunderstorm that just passed.

On the floor lie the bodies of John and Marsha. They are surrounded by puddles of water and broken glass. Please close your eyes and picture the scene. Now change the picture. Neither John nor Marcia has any clothing on. How did they die?

Story #3

A man is walking down the street, sees a bar, and enters. He asks the bartender for a glass of water. The bartender pulls out a gun and points it at him.

The man says “Thank you” and leaves the bar.
Story #4

A woman leaves home and makes three left turns. She returns home again. On the way, she passed two women with masks.

Who were the two women?

Story #5

A man and his son were rock climbing on a particularly dangerous mountain when they slipped and fell. The man was killed, but the son lived and was rushed to a hospital. The old surgeon looked at the young man and declared, "I can't operate on this boy: he is my son."

How can this be?
Story #6

Preston and his men searched the frozen tundra for escaped convict Ben Barker. Just as they were about to give up, one of Preston's men spotted a body. Barker was found lying dead in the snow. There were no tracks leading to or from the body. The cause of death was partially due to the unopened pack on his back. Barker did not die of thirst, hunger, or cold.

What was in Barker's pack that led to his death?

Story #7

Two train tracks run parallel to each other, except for a short distance where they meet and become one track over a narrow bridge. One morning, a train speeds onto the bridge. Another train coming from the opposite direction, also speeds onto the bridge. Neither train can stop on the short bridge, yet there is no collision.

How is this possible?
**Story #8**

Justin Summers owns a vacation house in northern Ontario which has an A-shaped roof. One side of the roof faces north and the other side faces south. The prevailing winds from the north are usually quite strong. The strange thing is that the stronger the north wind blows, the stronger the resulting updraft on the south side of the roof. Therefore, if a rooster was to lay an egg on the peak of the roof during a strong northerly wind, on which side should the egg fall most of the time?

**Story #9**

There is an ancient invention still used in some parts of the world today that allows people to see through walls.

What is it?
Story #10

Sly Hand, the famous magician, claims he can tell the score of any football game before it even starts. Many think he is psychic and possesses supernatural powers.

How is it that he can be accurate about the score 99 percent of the time?