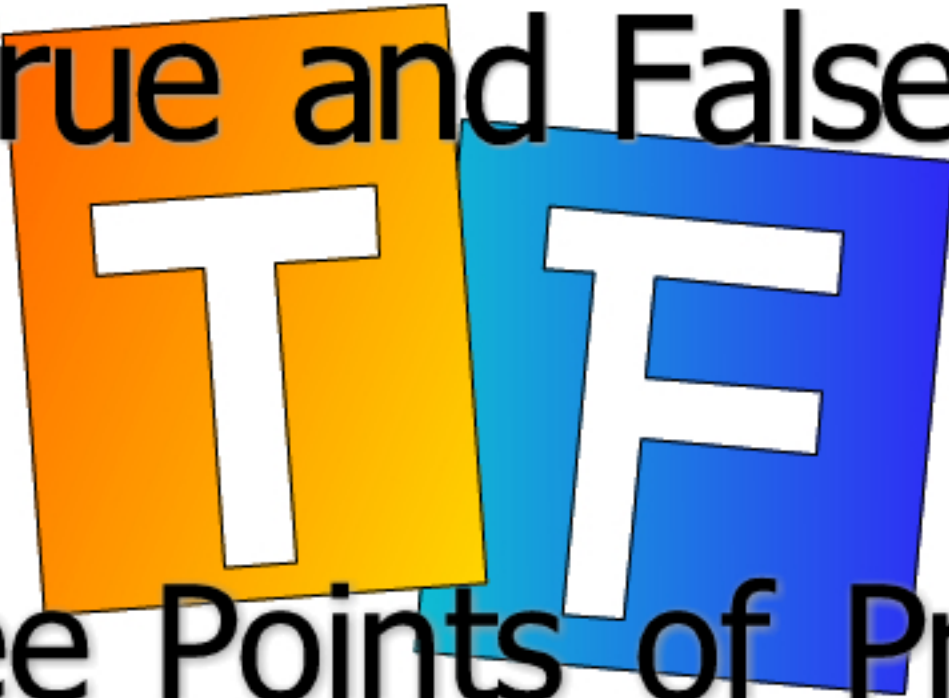


# True and False



# Three Points of Proof

## Strategies to Promote Problem Solving




The Positive Engagement Project

THE POSITIVE ENGAGEMENT PROJECT

Making a difference...not a dollar.

# True and False



## Three Points of Proof

The concept of true or false is certainly nothing new to anyone. However, what is meant by three points of proof? Well, the answer is simple: It refers to the three components that are essential in problem solving for students (and adults alike). The three points include Question, Text or Self or World, and Answer. In order for an answer to be correct, there must be a connection between these three components. If one of these three components fails to connect to the other two, then the answer will be incorrect a majority of the time.

It is important to realize that this is not merely a test taking strategy that will help students pass tests and that's it. This process is essential throughout a person's life in order to solve all sorts of problems they run into. This is in no way an attempt to manufacture good test takers. Rather, it is designed to help produce good problem solvers, thus helping them to "attack" problems, including those on a test, and validate the believed solution.

**True and False: Three Points of Proof** is a strategy designed to take questions and activities from the Remembering and Understanding levels of Bloom's Taxonomy and jack them up to the Analyzing and Evaluating echelon. Most worksheets and standardized questions have students recall or remember the information and explain ideas or concepts, which happen to be the lowest levels of intellectual behavior important in learning according to Benjamin Bloom and a group of educational psychologists. **True and False: Three Points of Proof** requires students to justify a stand or their decision for proving one answer choice true and the others false.

### So how does it work?

It is a progressive approach designed to allow students to work "backwards" when solving a problem. It cannot be stressed enough that this is not focused on arriving at the correct answer. As a matter of fact, **the answers should be given to students up front for a minimum of a month** (perhaps longer if necessary) so they don't need to worry about that piece. Correct answers are nothing more than byproducts of good problem solving strategies and are therefore the easiest part of the three since it should practically "jump out" at the students if the first two steps are completed properly. Does this sound too good to be true? Let's dispense with this rambling and get right to it!

### **What is the objective of this activity?**

Oftentimes, teachers will pass out a comprehension worksheet for students to complete with a short passage and 3 - 4 questions to answer. Teachers monitor the students to be sure they are focusing on the task at hand and are hopeful that they have taught their students enough that they get the right answer. When first starting, **getting the correct answer is not the** objective. In the initial stages, this strategy is less concerned with whether or not students get the right answer (that is why the answer is given to them right from the start) and more concerned with "how" they came to their conclusion.

The first step in this process is to give them the worksheet, **with the answers already identified**, and the graphic organizer that is included in this booklet. The objective is not **what** the answer is but **how** they came to that conclusion. It cannot be stressed enough to allow this process time to develop and not take away the answers for a minimum of one month, or even longer if needed. Remember, the answer is not the objective at this point.

### **What do I do with this incredibly simple looking graphic organizer?**

Good question! In order to answer this, a sample text will be given and the entire process for one question, which will take 15-20 minutes to do at first, will be demonstrated on a sample T/F organizer. This will demonstrate the extension opportunities available with this one activity.

One of the best things about this graphic organizer is the ease in which students can duplicate it by writing out their own. It's just two letters and very simple to create, making it easy for the teacher to apply this format to anything they want without needing to have extra copies around. It only takes a few times of using the preprinted organizer before moving away from machine copies to hand written copies.

### Why Don't Polar Bears Eat Penguins?

Polar bears and penguins have many similarities as well as many differences. Both are adapted to survive in the harshest, coldest weather this planet has to offer. Many physical traits make this possible. Among those traits is the ability for each of these amazing creatures to store fat, known as blubber, to be used as "insulation" against the cold. Another similarity is that they each have the ability to go extended periods of time without food or water when birthing and raising young.

There are also several differences between the two. The first, and perhaps most obvious difference, is that polar bears are mammals and penguins are birds. Being mammals, polar bears give birth to "live" young while penguins lay eggs and the fetus develops inside the egg until it is ready to hatch. As far as feeding is concerned, penguins have a taste for fish and are able to "fly" in the water and move swiftly and dive deep to catch them. Polar bears on the other hand prefer meat and will hunt seals and similar types of prey.

This brings us to the question of why polar bears don't eat penguins. It would seem that polar bears would have an easy time catching a penguin on the land, making it an easily accessible snack. Penguins are not especially fast on land, they don't have dens or burrows to protect themselves from dangerous predators, and are about the same size as seals and seem to be much more abundant and easier to locate since they are social birds and gather in large groups. So why don't they get eaten by polar bears? The answer is simple. Because it is impossible for the polar bears to get to them. You see, polar bears live in the Arctic (north pole) while penguins live in the Antarctic (south pole). You could literally say they are a world apart and there is no way for either one of them to reach the opposite pole. As a matter of fact, the two have never even seen each other. Thus, penguins are perfectly safe from polar bears. The same can't be said for seals.

**1. What type of writing best describes the selection above?**

- A. biography
- B. problem/solution
- C. steps in a process
- D. compare and contrast

Answer

**2. Why is it important for polar bears to store fat?**

- A. keep them warm in the cold environment
- B. help them float in the water when swimming long distances
- C. help them blend in with the environment
- D. help them appear larger to scare off potential predators

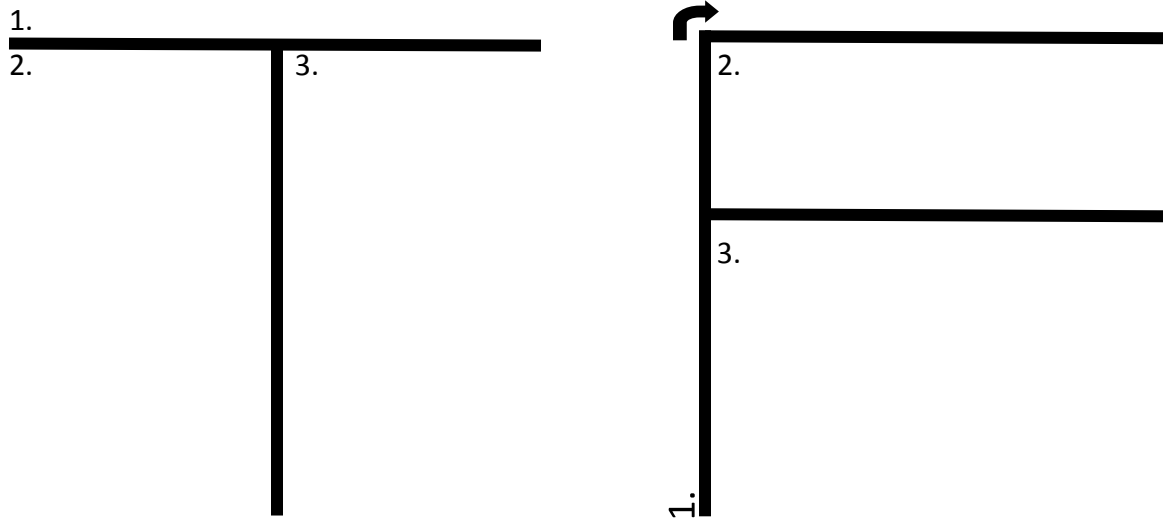
Answer

**3. What is a predator?**

- A. something that hunts and eats something else
- B. something that is hunted and eaten by something else
- C. an animal that only lives on land
- D. a creature that only eats plants

Answer

Notice in the sample worksheet that the answers are already identified for the students. Again, the objective is to validate, or prove, an answer. Giving the answer allows students to focus on the proof portion rather than worrying about whether or not they get the answer right. So, if the answer is given, what are the students going to do? They need to complete the following graphic organizer explaining "why" each answer is correct (or true) as well as why the other answers are wrong (or false). This will be a time consuming process at first but with continual practice and the expectation that students will be able to explain the reasoning behind their responses, students will begin to automatically use critical thinking strategies in all areas.



The numbers on the T/F organizer have no connection whatsoever to the question numbers on the worksheet. They are there to show the order in which the students are to fill out each letter. At this early stage of practicing and using this strategy, we will complete the "T" first since we already know what the correct answer is. As students get better at doing this, they can move back and forth between the T and the F if necessary.

Where the "T" is labeled with the number 1, the students will write out the key words and/or phrases in the questions. In this case the key words from the first problem in the sample would be, "type, writing, best describes, selection." It is recommended to have students use synonyms as much as possible because that is a simple way to demonstrate true understanding of what is being asked. With that in mind, students could also fill in number 1 with, "style, writing, best describes, passage." Of course the potential synonyms used are numerous and this is just one example of what it could look like.

The next step is to complete section 2 of the letter T. In this section, students will write out where they found supporting evidence for their answer. There are times when the answer is inferred or students rely on other information not totally available or identifiable in the text and that is perfectly fine. The students can also use this section to briefly explain what connection to the question they are using. Either way, the key here is that they must support their decision with a reason, which is the goal of this activity. In this example, students would need to explain that the selection is giving examples of how two things are both different and the same. An example of what would be written here would be, "The story tells how polar bears and penguins are the same and also how they are different."

Finally, the student will write what they believe the correct answer is in section 3. Since the answer in this case was already given, students could have filled this portion out first and then added the explanation after they justified the reason why it is the correct answer. For example, students could have written, "Choice D is the correct answer because," and then waited to fill out the rest. After identifying the reason, students would go back and complete the sentence. They would end up with something like, "Choice D is the correct answer because comparing is telling how things are the same and contrasting is telling how they are different."

Here is how the T would look when completed:

1. style, writing, best describes, passage

2. The story tells how polar bears and penguins are the same and also how they are different.

3. Choice D is the correct answer because comparing is telling how things are the same and contrasting is telling how they are different.

"Too often we give children answers to remember rather than problems to solve."

Roger Lewin, Ph.D.,  
British Anthropologist  
and Science Writer

As you can see, there are three points of proof that ultimately justify the correct answer: key points from the question, information from the text, world, or self, and key words in the answer. When all three of these seem to agree, chances of selecting the correct answer increases exponentially simply due to the fact that a logical approach has been applied which uses given information and details to come to a specific conclusion.

This brings us to the F. This is designed to give students the opportunity to demonstrate why other answers would be false by explaining exactly how they fail to fulfill the requirements of being the correct answer. Knowing what is wrong with some answers can actually lead a student to the correct answer by default.

A teacher has shared this quote for several years with his students: "You don't need to know the right answer to get the answer right!" It may sound a little odd, but here is a real life example of this concept in action as told by this particular teacher.

I was teaching third grade and the class was taking the California State Test. A student raised his hand and asked what an almanac was. Unable to assist the student, I told him to do his best and trust in the strategies he had learned. I noticed the four choices he had to choose from were dictionary, atlas, encyclopedia, and almanac. Glancing at the question, I knew the correct answer was almanac. Unfortunately, I also knew I had not taught the class what an almanac was.

About two minutes later, he raised his hand again. I thought for sure he was going to ask for help a second time. However, when I got to his seat, he told me he had figured out the correct answer. He proceeded to explain to me that he knew an encyclopedia was a reference book that gives general information, so that couldn't be the answer. A dictionary tells us five things about a word, so that couldn't be the answer. And an atlas is a book of maps that tells us where places are, so this choice couldn't be the answer. Then came the best part of all. He pointed at the word almanac and said, "I don't know what that is, but it has to be the correct answer because the others don't fit the question." I told him I couldn't say whether or not he was correct (which he was) but I liked the way he was using the strategies we practiced in class.

The second best part came as I walked away and heard him say, "Hmm, I guess you really don't need to know the right answer to get the answer right." After testing was finished, he asked me what an almanac was. When I explained it to him, he smiled and said, "I knew it! I got it right!"

As you can see, the student did not know the right answer but got the answer right simply because he was able to identify what was wrong with the other choices. He selected an answer when he didn't even know what it meant because that was the only logical conclusion he could come to.

This is exactly what the purpose of the F is for. The F is numbered the same way as the T but it is for a different reason. Generally speaking, most multiple choice activities and tests give four choices to choose from. Because of this, the F has been labeled 1-3 in order to allow the students to briefly explain why each of the three remaining choices are incorrect. Let's go back to the sample worksheet and fill in the F with the incorrect choices and see what that would look like.

1. C is wrong because nothing was put into any sort of order to be followed to reach an outcome.

2. A is wrong because a biography is a nonfiction story written about someone's life and this is not described here.

3. B is wrong because there is no identifiable problem or solution given here so this cannot be the correct answer.

I am entirely certain that twenty years from now we will look back at education as it is practiced in most schools today and wonder that we could have tolerated anything so primitive.

John W. Gardner  
Secretary of Health,  
Education, and Welfare  
for President Lyndon B. Johnson

Notice that students can fill in the wrong answers in any order. If an answer really jumps out as being incorrect, the students can fill in the first section of the F as soon as they identify the wrong answer. This will usually be the case since most questions have at least 1 or 2 incorrect answers that are somewhat obvious. In our example, the student knew for sure that steps in a process was incorrect since nothing was put into any sort of order which needed to be followed in order to reach an outcome so that was the first one they filled in.

The next wrong answer filled in on the F was biography with the reason being that bio- means life and -graph means something written or recorded, and this is not a written story of someone's life. Finally, we have section 3 filled out with the wrong answer of problem/solution since there is no identifiable problem in the story or a solution given.

All of this is designed to get students thinking critically about what they are doing and developing justifications for the decisions they are making. This type of strategic thinking can be applied in every situation they encounter throughout their lives. It is a life skill they are learning



embedded into a traditional schoolroom lesson. How many times have teachers asked students, "What made you decide to do that?" Whether it was a good or bad decision in a game, or a conflict on the playground, or an answer given on a test or other classroom activity, knowing the reason why a decision was made is key in the development of effective, genuine thinking and learning.

### **How often do I use this strategy?**

As it was stated before, it takes extra time to complete this graphic organizer but the impact on learning is far more effective than the traditional read, choose, and hope for the best approach common in most classrooms. Because of this, using this once or twice a day at the most will be plenty to get the results it is designed to achieve.

Many occasions in teaching, time is the constant; it defines when things need to be learned. In actuality, time should be the variable. Real learning requires time to be truly acquired. In this day and age of testing, scope and sequences have become the driving force in instruction. The problem with that is it makes us go a mile long in content, but only an inch deep in understanding. To truly master something, people need time to gain experience and depth with their learning. **True and False: Three Points of Proof** allows students to go a mile deep with content instead of an inch. Look at it like the difference between water skiing and scuba diving. If you wanted to experience ocean life and learn about the creatures and ecosystems that reside there, could you learn more by waterskiing on top of the surface or by diving down deep? The answer seems pretty clear that to have a greater understanding of something, you must dive deeper into it.

For the sample worksheet on page four, three days would be spent completing the three questions, with one question being completed each day. Below you will find a basic outline of activities that can be used with this one worksheet and how it should look from day to day. Naturally, it is expected that teachers can add and remove any pieces they want to better address the needs of their particular students. However, **DO NOT RUSH THROUGH IT IN AN ATTEMPT TO COMPLETE ALL THREE PROBLEMS FROM THE SELECTION IN ONE DAY.** This will nullify the effectiveness and take the students away from deeper, permanent learning.

The example below represents an easy to follow format that can be used with readers at all levels and is a great starting point for teachers as they learn how to effectively use this strategy.

**Day 1:** Read the selection as a teacher read aloud and discuss key points. Have students silently read for additional practice. With a partner students will complete the T/F organizer for number 1 and the teacher will discuss with the class appropriate responses.

**Day 2:** Students silently reread the passage (just a couple minutes).

Use the passage for a couple quick reading games for fluency practice.

With a partner students will complete the T/F organizer for number 2 and the teacher will discuss with the class appropriate responses.

**Day 3:** Students read selection with a partner (just a few minutes).

Time students on 1 minute fluency test (informal, no record keeping) with one partner reading as the other partner follows along, switching

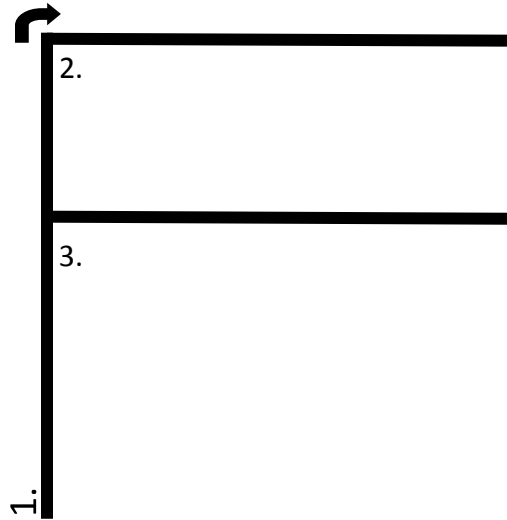
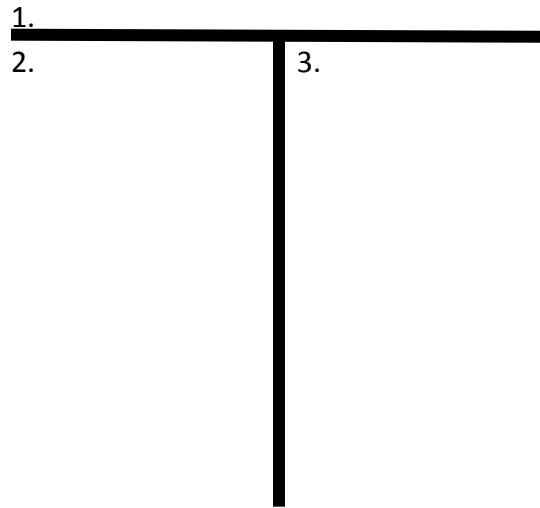
roles when the first partner has read for one minutes. Do this rotation 2

times. With a partner students will complete the T/F organizer for

number 3 and the teacher discusses with the class appropriate responses.

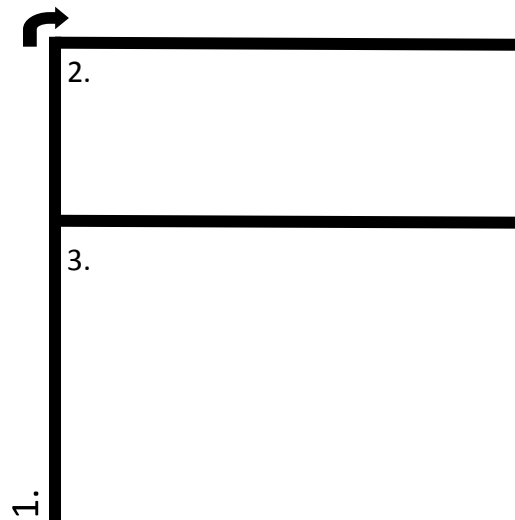
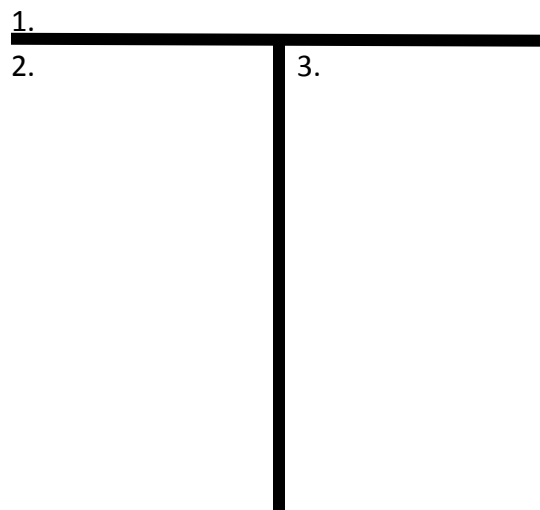
As you can see, this one simple worksheet, which is normally completely finished in 10-15 minutes, has now evolved into a comprehensive series of lessons hitting several reading skills using several strategies. It is always beneficial to the teacher if one activity can be used in a multitude of ways. The basic skills practiced in depth when using this method are fluency, reading comprehension, critical thinking, and problem solving. In addition to this, students are much more likely to remember at least a few of the basic facts from the actual story itself when otherwise it would have been a one and done (and mostly forgotten) activity. It not only deepens the learning for the students, it dramatically cuts down on the amount of copies and resources used by the school. One worksheet can now be used for nearly an entire week. Just think of all the trees you would save. True and False: Three Points of Proof is great for deepening understanding and is **eco-friendly!**

True and False  
**T F**  
Three Points of Proof



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True and False  
**T F**  
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### **What do I do next?**

That's simple. Make some copies of the Graphic Organizer, get a simple worksheet (make it an easy read for the students so they can focus on practicing the strategies without feeling at all threatened by the difficulty of the text), and get started. A teacher might even want to use the sample worksheet given in this document and use the prefilled T and F to model what it will look like when they do it on their own. Show the students, step by step, what to do the same way it was done here. It is a great help to kids if they get to see a final product before attempting to do it on their own.

**"Striving for success without hard work  
is like trying to harvest where you haven't planted."**

**- David Bly**