

Meeting 2: Meeting Mr. No and drawing conclusions

May 23, 2012

Mister No is a funny character who replies with the *opposite* to every statement that he hears.

It does not matter to Mr. No whether the statement is a truth or a lie.

Here are some examples of his answers:

Statement	Mr. No's response (Opposite statement)
All children like ice cream	Some children do not like ice cream
All balloons are red	Some balloons are not red
All fairy tales have happy end	Some fairy tales do not have happy end

1. Can you predict what Mr. No will respond to each of the following statements?

Statement	Mr. No's response (Opposite statement)
All students like math	
All stars are very far away	

All lemons are sour	
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2. Can you describe how Mr. No constructs the opposite of each of the statements above?

3. How would Mr. No reply to each of the following statements?

Statement	Mr. No's response (Opposite statement)
Some cats are purple	
Some planets have rings	
Some cars are fast	

As you have discovered, each statement has an opposite. Here are some examples:

Statement	Opposite statement
All ... are...	Some ... are not
Some ... are ...	All ... are not ...

4. How would Mr. No respond to the statement, "There is a boy who likes pizza"? Start your sentence with "There are..."

5. Mr. No tells you a story. As usual, instead of telling how it should be, he tells the exact opposite. Can you rewrite (or retell) the original story?

Once upon a time there were no magic animals living in the enchanted forest.

Some of them were not friends with each other.

All animals were not very powerful. They did not help others.

When there was danger, some animals did not get together and protect the baby animals.

This is how some of the baby animals did not grow up in the enchanted forest and could not learn their magic powers.

6. Mr. Yes is good friends with Mr. No. A typical conversation between Mr. Yes and Mr. No goes something like this:

- Mr. Yes says something
- Mr. No responds
- Mr. Yes can't believe Mr. No, so he repeats what Mr. No said as a question
- Mr. No responds
- Mr. Yes is pleased and says goodbye.

Here is an example:

Mr. Yes: Hello! Did you know that all people need to eat?

Mr. No: No, some people do not need to eat.

Mr. Yes: What? I can't believe it. Some people do not need to eat?

Mr. No: No, all people need to eat.

Mr. Yes: That's what I said! Goodbye.

Why is Mr. Yes pleased in the end?

Write the conversation that Mr. Yes and Mr. No would have if Mr. Yes starts with the statement: "All days in Los Angeles are sunny days." Write it like the example.

Mr. Yes: Hello! Did you know...

Mr. No: No,

Mr. Yes: What? I can't believe it.

Mr. No: No,

Mr. Yes: That's what I said! Goodbye.

7. A statement can be either true or false. If a statement is true, it means the opposite statement is false. If a statement is false, this means that the opposite of the statement is true.

For example, the statement:

“All days in Los Angeles are rainy days.” is a false statement.

A true and opposite statement is:

“Some days in Los Angeles are not rainy days.”

In addition to writing the opposite, we can come up with an example that proves the statement was false. This is called a counter-example.

For example:

“Yesterday, it did not rain in Los Angeles.”

is a counter-example to

“All days in Los Angeles are rainy days.”

For each of the statements below, state whether it is true or false. If it is false, provide the opposite statement and a counter-example. If the statement is true give supporting evidence of why that is.

(a) “All numbers are even numbers”.

(b) “Some numbers are not whole numbers.”

(c) “Every even number is followed by an odd number.”

(d) “All people own a pet.”

(e) “All houses have a garage.”

8. Early Elementary circle students always bring pencils to the math circle. Today, some students brought 2 pencils and some brought 3 pencils. Altogether, there are 5 students and 13 pencils. Melinda wants to know how many students brought 2 pencils and how many brought 3. Can you help her?

9. A snail crawls along a tree. Each day, it climbs 2 meters. Each night it hoes down by 1 meter. The tree is 5 meters tall. The snail starts at the bottom of the tree on Monday morning. When will it reach the top of the tree?