Predict It!



Dona Herweck Rice

For teachers' inspection ONLY

Table of Contents

Tricky Business 4

Scientific Method 6

Now, How About Prediction? 12

Be Specific 16

It's Probable 20

Don't Change! 24

Think Like a Scientist 28

Glossary 30

Index 31

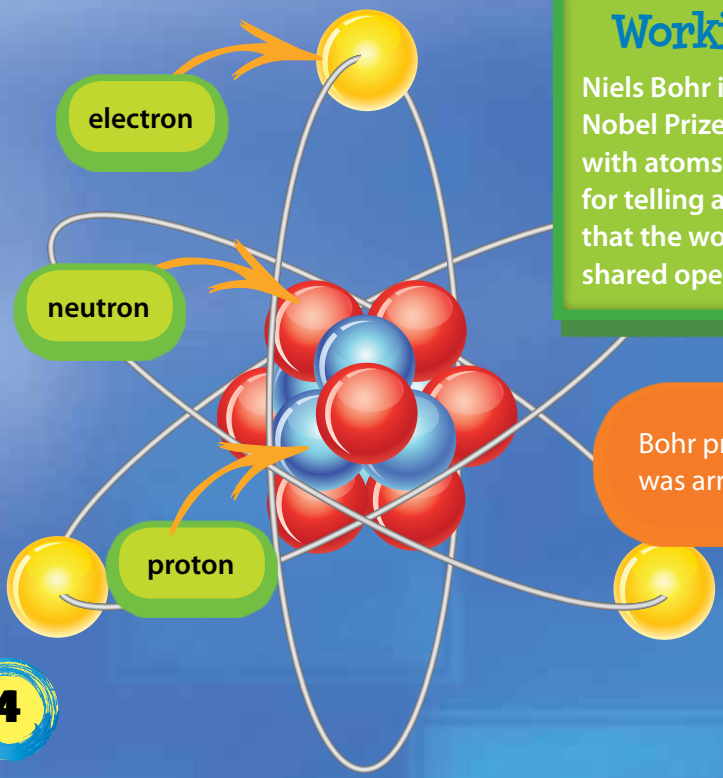
Your Turn! 32

For teachers' inspection ONLY

Tricky Business

"**Prediction** is very difficult, especially if it's about the future."

That was said by famous scientist (and comic) Niels Bohr. Okay, okay, he wasn't a comic. But what he said is pretty funny, right? And Bohr knew what he was talking about! As a scientist, he knew about **evidence** and making predictions. He also knew about testing predictions. Again and again and again and again and . . .



Bohr predicted that the atom was arranged in this way.

Working Together

Niels Bohr is famous for winning a Nobel Prize in science for his work with atoms. But he's also famous for telling all scientists and nations that the work of science should be shared openly and freely.

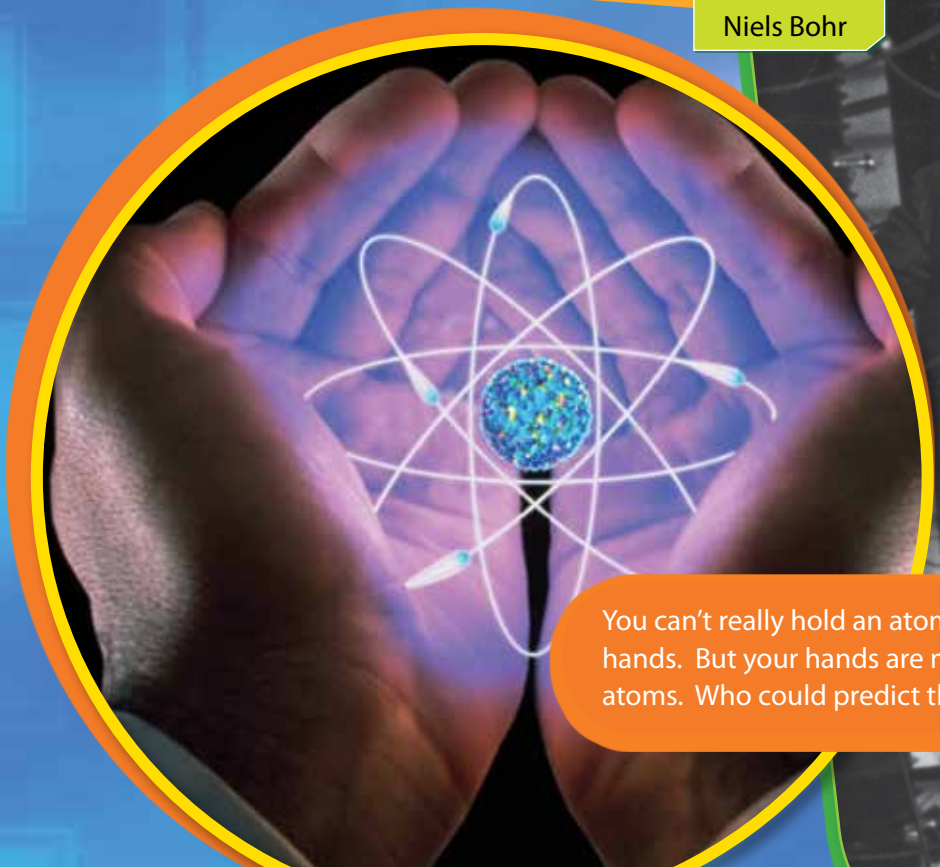
For teachers' inspection ONLY

It's tricky business! Making scientific predictions isn't the easiest work out there. But it's worth it. If you are someone who likes to solve puzzles or mysteries, the world of science is a good place for you. There's no limit to what you can think, explore, and do.

In fact, I predict that you will be a very good scientist!



Niels Bohr



You can't really hold an atom in your hands. But your hands are made of atoms. Who could predict that?

For teachers' Inspection ONLY

Scientific Method

There's a method to their madness! The **scientific method**, that is.

Every good piece of science begins with the scientific method. What exactly is the scientific method, you ask? Well, I'm happy to tell you! But listen up, because I'm only going to say it once! (Of course, you can always read it again and again, but that's a different matter.)

Are you listening?

Are you sure?

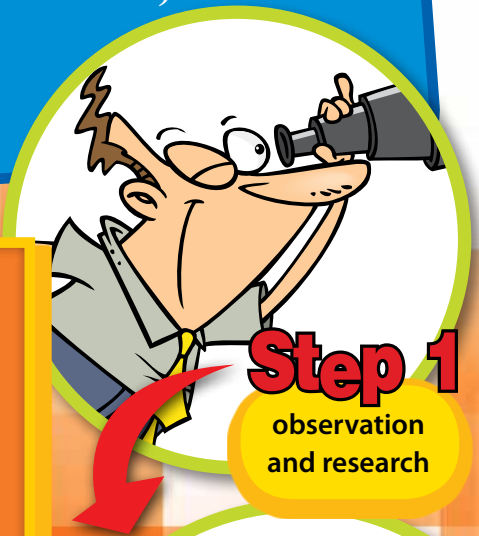
And a One, and a Two . . .

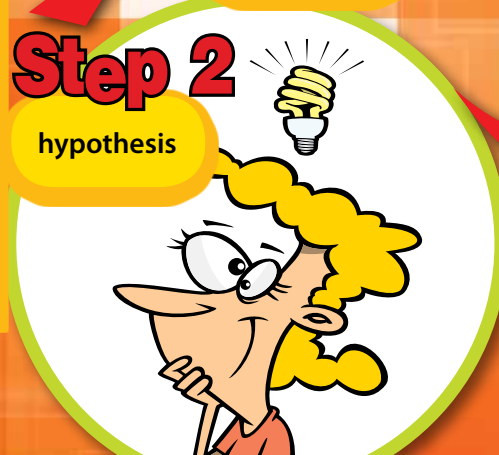
Here's the scientific method, in six easy steps:

- observation and **research**
- **hypothesis**
- prediction
- experimentation
- **analysis**
- report

Is the hypothesis true? Great! Report your results. Not true? Report your results anyway, make a new hypothesis, and try again!

Note: Scientists don't always do the steps of the scientific method in the same order. . . and they may even repeat some steps!





For teachers' inspection ONLY

Okay, here it is. The scientific method is a plan used to investigate a question in science. In other words, it's the method for "doing" science well. Get it?

After all, why do something if you're not going to do it right? The scientific method is doing science right.



For teachers' inspection ONLY

Good science work must be planned. It starts with an idea, something that the scientist is curious about. Maybe, "Hey, why can't I get that song out of my head?" Or, "I wonder why my lawn turned brown even though I watered it?"

The scientist thinks about the idea. Then he or she **observes** and does research to learn what is already known about it. For example, the scientist sees her dog lift its leg on the lawn every day. "Hmmm," she thinks. "I wonder what that means?" She might research whether other dogs do the same thing when they visit the lawn.

From that, the scientist forms a hypothesis. A hypothesis is something the scientist assumes from what she already knows. It's based on information that has been gathered. Maybe it's "Canine urine* kills a lawn."



*That's right, dog pee.



True or False?

What makes a hypothesis testable? It must be something that can be proven true or false. You can test the idea that all yo-yos are red by looking at every yo-yo in the world. You just need to find one yo-yo that's a different color to know the hypothesis is false. But even if you couldn't look at every yo-yo in the world, this is still a testable hypothesis. You just haven't proven it true yet.

For teachers' inspection ONLY

What comes next takes super-science brainpower! The scientist needs to test the hypothesis. And so, she makes a prediction. Take the lawn, for example.

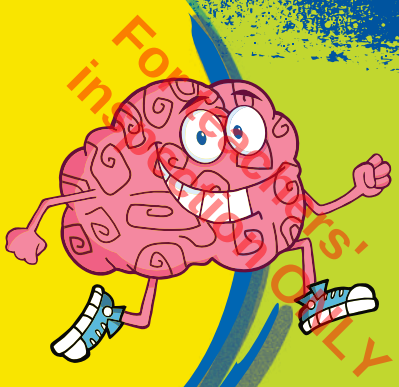


The Right Hypothesis

Keep in mind three important things when forming a hypothesis:

- It should be something that's not already known.
- It's a statement, not a question.
- It must be testable.

Think Like a Scientist



For students' instructional use ONLY

How can you form a good scientific prediction? Experiment and find out!

What to Get

- sandwich bag
- sharpened pencils
- water

