

Fun with Science (Grades K-2)

Hello and welcome! Today's lesson is about the basics of science. Let's start with a definition:

“Science is the search for truth, the effort
to understand the world.”

Linus Pauling (2-time Nobel Prize-winner) 1958, Dodd Mead, NY

Did you know that there are two types of science? The first type is observational science. Have you ever conducted an experiment in class or at home? That is observational science! Observational science deals with the present—things that we can test. We use observational science to develop all kinds of cool things like smart phones, computers, medical equipment, cars, airplanes and spaceships.

The second type of science is historical science. This type of science deals with things that happened in the distant past. For example, scientists find fossils (the remains of something that lived long ago) and then develop ideas about the creatures that made them. The main problem with historical science is that we are not able to fully test many of the ideas. No one (except God) was there when these fossils were made. That is why scientists can look at the exact same fossils and come up with totally different ideas (see below).



The Scientific Method

Scientists (and other people) use the scientific method to test their ideas and create new inventions. Let's take a closer look.

Step 1: Develop idea (hypothesis)

The first step in the scientific process is to develop an idea (hypothesis) to test. This could be something simple like confirming the presence of air or something really complicated like designing a new rocket.



Step 1: Develop a hypothesis (idea)

Step 2: test hypothesis by gathering data or experimenting

The next step is to test the idea by gathering information. This can be done by researching what others have discovered or conducting experiments. If we were building a new type of rocket, this step could include launching it.



Step 2: test hypothesis by gathering data or experimenting

Step 3: accept, refine, alter, expand or reject hypothesis

Based upon the results of step 2, scientists and inventors accept, reject or change their hypothesis. It often takes several attempts to obtain the results the scientists want to achieve. This is especially true for creating new things. For example, we would keep refining and testing our rocket until we developed one that worked safely and reliably.



Step 3: accept, refine, alter, expand or reject hypothesis

Should we ALWAYS trust scientists?

Public school textbooks often feature scientists and say that we should trust them. Should we ALWAYS trust scientists? No, we should not. Here are a couple of things to think about:

1. Scientists are people and make mistakes.
2. Some scientists do not believe in God. This often causes some of them to make mistakes when looking at fossils (historical science). For example, some scientists believe that ape men were real creatures (they were not).

The Bible says: “The fear of the Lord is the beginning of knowledge...” (Proverbs 1). We should always use God’s Word to test what people tell us!

If someone tells you that real scientists do not believe in God, that is simply not true! There are hundreds of great scientists who are Bible-believing creationists.

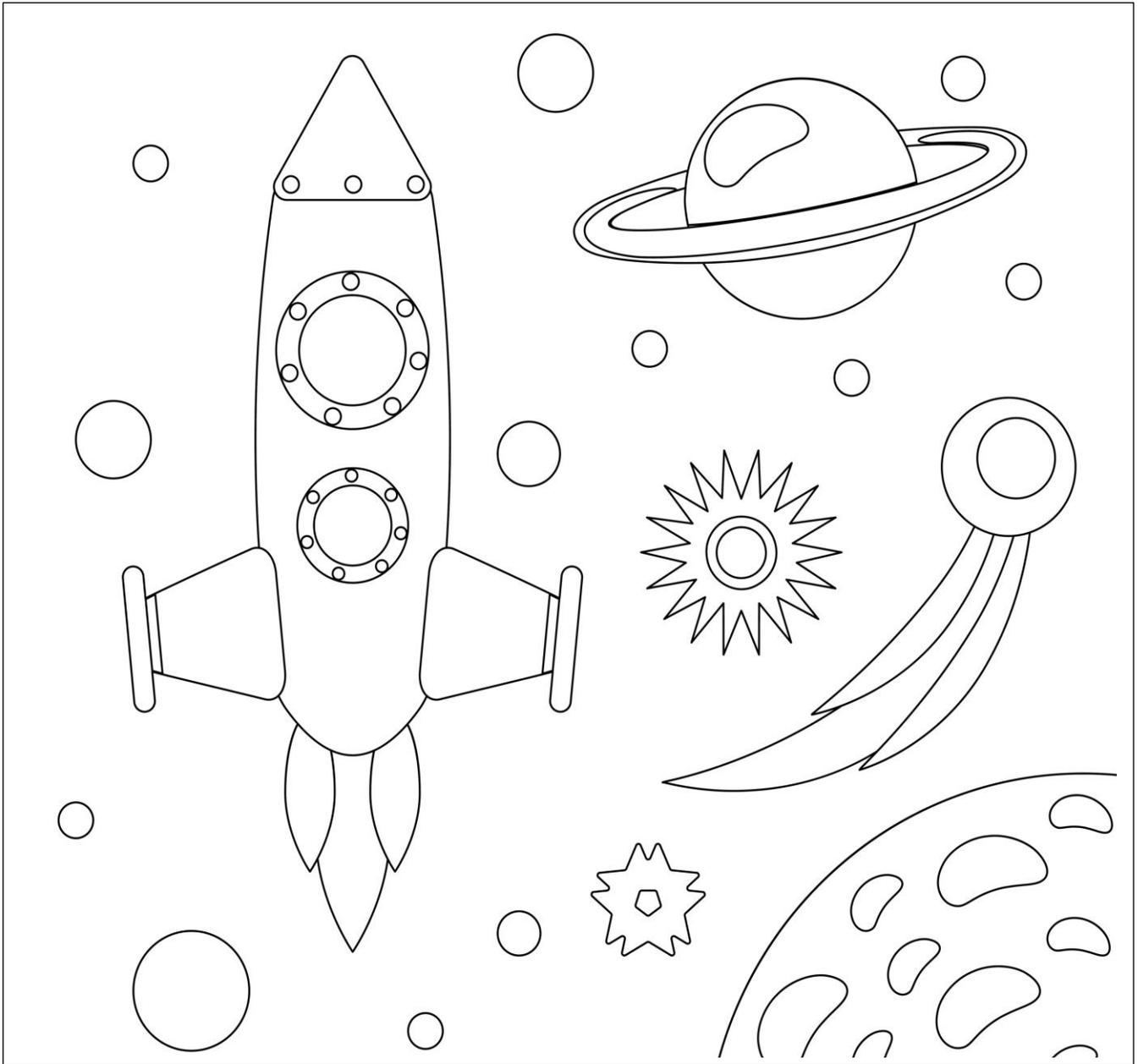
If you want to learn more about science (and I really hope you do!), here are some great books that were written by scientists at the Institute for Creation Research (ICR). You can purchase these books at:

<https://store.icr.org/pack-science-for-kids-full-set.html>



“For in six days the Lord made the heavens and the earth, the sea, and all that is in them, but he rested on the seventh day.” Exodus 20:11

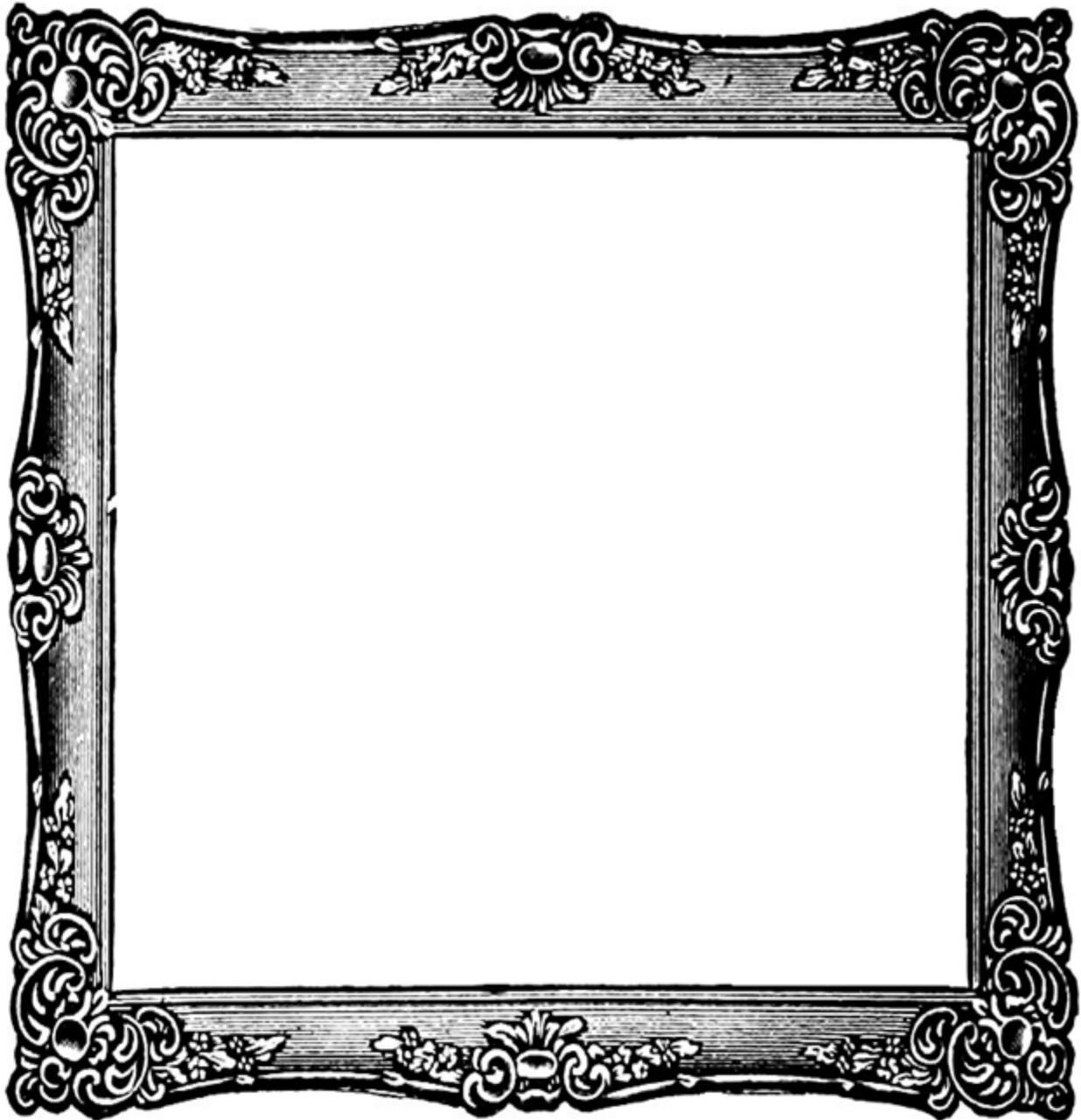
Activity: we use observational science to create smart phones, computers, medical equipment, cars, airplanes and even spaceships! Just for fun, color the picture shown below.



Activity: scientists find fossils and then develop ideas about the creatures that made them. This is called historical science. Sometimes it is hard to know what creatures that lived long ago but are now extinct were really like. Just for fun, what animal does this skull belong to? Draw a picture of your answer in the box below.



Hint: we covered this in the video :)



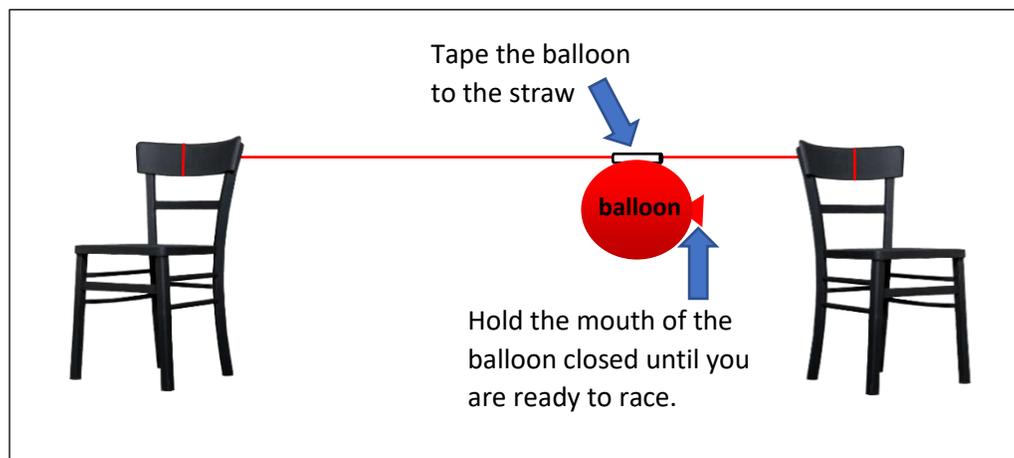
Activity: the Bible tells us that God created the atmosphere on Day 2 (Genesis 1:6-8). The atmosphere (air) is very important—without it we couldn't live here on Earth. Even though we cannot see air, we can do fun experiments and activities to prove that it is really there. The activity below uses air pressure to make balloons move. Have fun!

What you will need:

- 20 feet of string (the smoother the better)
- Straws
- Scissors (to cut the straws and string)
- Balloons (9 to 12-inch balloons work well)
- Tape
- Two chairs (or something else to tie the string onto)

Steps

1. Place two chairs about 15-20 feet apart. Tie one end of the string onto one of the chairs.
2. Use the scissors to cut the straw to about 3-4 inches long.
3. Thread the string through the straw and tie the end of the string to the remaining chair. Please note: make sure that the string is taut. Cut off the excess string.
4. Inflate the balloon **but do not tie it**. Hold the mouth of the balloon closed with your hand. Tape the balloon to the straw so that the mouth of the balloon is facing the chair that will be your starting line (as shown in the diagram below). Note: it really helps to have two people for this step.



5. Release the mouth of the balloon and watch it go! If you want to race against others, set up multiple strings by following the steps above.
6. Just for fun, trying using different shapes and sizes of balloons and write down your observations.
 - Which balloon went the farthest?
 - Which balloon was the fastest?
 - Does the size of the balloon make any difference?
 - Does the length of the straw make any difference?