

Bowwow Barker Training 009: Spectacular Sundials

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Biblical Integration

“There is a time for everything, and a season for every activity under the heavens.”
Ecclesiastes 3:1 (NIV)

Objective

Discover how the ancient Egyptians kept time using the super sleuth skills of observation, measurement, and precision.

Vocabulary

- **Sundial:** An instrument showing the time by the shadow of a pointer cast by the sun onto a flat surface
- **Precision:** Being exact or accurate

Materials

- 1 hot glue gun
- 1 cardboard square (12-15in. x 12-15in.)
- 1 cardboard tube (paper towel tubes work great!)
- Ruler
- Pencil
- Data sheet (included below)

Lesson: Spectacular Sundials

The ancient Egyptians lived thousands of years ago. They were known for their precision and ability to solve complex problems.

One such problem was the ability to determine the time of day. Although no one knows for sure who invented the sundial, the credit goes to the Egyptians, who refined this tool to be both stationary and portable.

Ancient Egyptians used the sundial, which they called a shadow clock, to help determine the time of day in order to carry out events, perform religious rituals, and set tasks to specific times of day. With the invention of the sundial, people could better predict weather and time-related events.

While it would be nice to be able to know what happens in the future, only God truly knows the future. He allows us to experience and enjoy the present, while asking us to trust Him with our future.

As Ecclesiastes 3:1 states, “There is a time for everything, and a season for every activity under the heavens.”

We can trust that God’s plans and timing are perfect. We can rest in the knowledge that His will is what’s best for us.

Today, you will create your own ancient Egyptian sundial.

Procedure

#1. Plug in the hot glue gun. Allow it to heat. (Make sure an adult does this!) Place the cardboard square on a flat, clean, dry surface.

#2. Once the hot glue gun is warm, place the cardboard tube in the center of the cardboard base. Glue it into place with the help of an adult. Use enough glue so the tube stands up on its own. You don’t want it to fall over with movement or wind.

#3. Once it’s dry, it’s time to test your sundial. Take it outside and place it in a space that gets direct sunlight throughout the day. You may wish to anchor your sundial to the ground with something heavy on all four corners. Rocks work well for this.

#4. Using a ruler and a pencil, place the ruler along the shadow the sits on top of the cardboard base and draw a line from the cardboard tube to the end of the cardboard base. Write the time of day next to the line.

#5. Answer questions 1-2 on the data sheet.

#6. Set an alarm for every 1-2 hours. Repeat step 4 and 5 each time.

#7. At the end of your data collection, answer the remaining questions on the data sheet provided.

Data Sheet

- 1) What time of day did you start recording the time on your sundial?
- 2) Hypothesis: What do you think will happen to the shadow on the cardboard base each time you record the new time of day?
- 3) What time of day did you stop recording?
- 4) Analysis: Was your hypothesis correct? Why or why not?
- 5) Do you think the sun's shadow will move in the same direction each day the sundial is used? Why or why not?
- 6) Read the Bible verse from Ecclesiastes together. How can you trust God for the future?

Conclusion

Just like the ancient Egyptians, you used a sundial to figure out the time of day!

As the Earth spins on its axis around the sun, the sun appears to us as if it is traveling across the sky. As the day progresses, the sun casts shadows in different places on the sundial.

Earth always spins the same direction each day, so the sundial is a reliable tool to help determine the time of day. God truly gives us all of the wisdom and tools we need to solve problems.

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