



Are Bigger Brains Better? (🧠 A Brain Facts Story)
(1st – 6-7 yrs.)
Experiment: Hard Heads

 **STORY CONNECTION-SLIDES 16 (Approx Time: 10-15 mins)**

Animals' brains are designed to help them do behaviors that they need to do to stay alive. The more behaviors an animal does, the bigger brain they need to do these behaviors. We will compare the behaviors that animals do to stay alive, along with their head and brain sizes.

Materials needed:

- 2 Sheets of paper
- 2 Small plastic or paper cups
- A pencil, pen or crayon (something to write with)
- Scissors
- Brain Diagram (included below)

Preparation needed:

- Determine how you will display brain diagram

Instructions:

1. Review about behaviors and brain size. The more behaviors an animal must do, the bigger the brain needs to be.
2. Tell student(s) that the cup will represent the head of an animal – or the skull which is the bone that makes up your head and the paper will represent the brain of the animal.
3. Give each student 2 pieces of paper and 2 cups.
4. Next, have the student(s) trace the bottom of the cup on one of the pieces of paper. Have the student(s) cut out the tracing. The other piece of paper remains the same.
5. Their task is to get each brain (traced circle and full sheet of paper) to fit into a skull (cup). They may not tear or cut the paper in any way.
6. Give them a specific amount of time, not more than five minutes, to do the task.
7. Move around and note what student(s) are doing. As you move around you can talk to student(s) about the following:
 - What problems are they having?
 - What strategies are successful?

***NOTE: Most likely, the student(s) are struggling with getting the bigger piece of paper into the cup unless they are scrunching it up and stuffing it into the cup. ***
8. After the allotted time (five minutes) is over, and student(s) have had ample time to experiment stop and discuss their experiences as a whole group. You can use the same probing questions listed in step 7.

9. After the discussion, demonstrate for them how to make the full paper fit into the cup. Explain that by scrunching up the paper as small as possible, the paper can fit into the cup. Make the connection that this is how you get a big brain into a small skull.
10. Have each student do this with their brains.
11. Now, have the student(s) take both brains out of the cups and have the kids compare the 2 brains.
12. Ask the following questions and have student(s) respond:
 - Why is one brain smooth and one brain wrinkly?
 - Which brain is smoother, the bigger brain or the smaller brain?
13. Discuss with student(s) how animals that do a lot of behaviors need bigger brains to do all the behaviors. But the brain must fit into the skull. When the brain is too big for the skull then the brain has to do the same thing that the student(s) had to do with the paper. The brain has to fold up which is why brains have lots of wrinkles and bumps, just like the paper.
14. Ask student(s) and have them respond:
 - What does this tell us about animals with wrinkly and bumpy brains? They do more behaviors!
15. Show the figure below and have the student(s) compare the brains.
16. Ask the following questions and have them respond.
 - Which animal brain (yes, humans are animals) is bumpier?
 - Which animal does the most behaviors?
 - What behaviors can humans do that rats and cats do not do?
17. Remember, a bumpy brain does not necessarily mean a smarter brain. It just means that the animal does more behaviors.

