

THE INCREDIBLE MAGIC HOOEY STICK

(All information can be found on-line at the Access Excellence website

<<http://www.gene.com/ae/AE/newatg/BanisterMarx>> or received via email, excluding diagrams, by sending an email request to John Banister-Marx at <aejbmarx@sedona.net>)

Here's an exciting idea to teach the real scientific method, the edifice of science - - critical thinking. Of course we're talking about skepticism, empiricism and logic. And the Magic Hooey Stick is just the activity you've been looking for.

You'll find the construction plans attached. If you're not handy in the woodshop, I've made a few hundred hooey sticks for sale at 2.00 each plus shipping. Send requests to John Banister-Marx, email: <aejbmarx@sedona.net>

Allow 1 Magic Hooey Stick per team of two students. Per dozen Magic Hooey Sticks purchase the following:

MATERIALS:

(2) 3-foot x 3/8 inch dowels, (2) 3-foot x 1/4 inch dowels, (12) 3d 1-1/4 inch smooth box nails

TOOLS NEEDED FOR MANUFACTURE:

- hammer (to set nail in main shaft)
- belt/disk sander (to smooth edges)
- drill press or hand drill (to drill "propeller" hole and tap hole for nail)
- band saw, hand saw, or hack saw (to cut dowels to length)
- bastard half-round or round file (to create the 11 grooves in the main dowel shaft); bench grinder works faster
- vise (for holding the larger dowel piece as you use the file to create the grooves)

ASSEMBLY PROCEDURE: (lengths are approximate due to cutting loss)

1. Cut each 3/8" dowel into six 6-inch lengths.
2. Cut each 1/4" dowel into six 4-1/2 inch lengths, and six 1-3/8 inch lengths. Check to make sure you now have twelve 3/8" dowels of 6" length, twelve 1/4" dowels of 1-3/8" length and twelve 1/4" dowels of 1-3/8" length.
3. Sand the ends and edges of all dowels to prevent splintering.
4. Using a 1/16" drill bit, drill a hole exactly centered at one end of the larger (3/8") dowel to a depth of ~5/8".
5. Make a mark with a pencil exactly 1" from the end of the dowel with the drilled hole. From this mark, place 10 more pencil marks exactly 1/4" from each other for a total of 11 pencil marks running approximately half the length of the dowel.
6. Using a 1/8" drill bit, drill a perpendicular hole all the way through, at the exact middle of the small 1-3/8" long 1/4" dowel.
7. Check for drill hole splinters on this small piece and sand smooth around hole.
8. Sand polish the ends of this small 1-3/8" piece.
9. Place the larger 3/8" dowel piece in a vise and create the 11 grooves using the bastard half round file. This will take approximately 6-8 strokes to create each 1/8. deep groove. Best to have the groove somewhat v-shaped.
10. Tap the nail in place to secure the propeller to the main, now notched. shaft.

Hope you enjoy it!

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UNFOLDING THE DRAMA, ANSWERS TO DISCUSSION QUESTIONS, AND RECOMMENDED RESOURCES

Unfolding the drama: Once you have a class set of Magic Hooey Sticks, I recommend unfolding the drama as follows:

1. Make name and date changes on the top of the cover letter from the Psychic Centers of America. Make an overhead copy of the letter.
2. Place dozen Magic Hooey Sticks in a shipping box, along with the overhead copy of the cover letter. Seal it as if it were being shipped.
3. Have the box delivered to your room by a staff member saying "This just arrived special delivery Ms / Mr...." You act excited and open the box with the class looking on.
4. Play with a Magic Hooey Stick but fake having no success. Discover the cover letter and put it on your overhead and read it out loud to your class, being as serious as possible.
5. After reading the *magic mantra*, successfully operate the Hooey Stick. Try to convince the kids that you must have psychic powers (hopefully you have already covered the importance of skepticism, empiricism, and logic as the foundations of modern science). Some will question your ability. Let them offer various challenges ... "you're just blowing on it" -- so show them you can do it with your head turned. etc. Show them that you can even do it telepathically - - be sure to squint your eyes and grunt a little; look like this takes some effort - -great special effect. When they offer a challenge that would result in you not being able to actually make it work (like if they ask you to hold the rubbing stick in a way that would make it impossible to make the Hooey Stick propeller to change direction) say "Hey, there are about a dozen more in here, why don't you guys try it with me and see if you have psychic powers too."
5. Read the mantra again with them and have them join you saying it out loud, in a "repeat after me" style.
6. Pass out the Magic Hooey Sticks, 1 per team of two, and watch them go to work. Funny sight!! :-> If they ask to see what you are doing again, go ahead and demo again, but be sly. They will be observing very closely. Have discussion on the hooey stick results the next day so that they have had time to stew over it. Never deny your psychic powers.

For adding a quantitative component you could have the students mass the hooey sticks and measure the lengths in metric units and then share data to create a histogram or line plot.

Answers to questions:

1. Most students will be forced to admit they could not make the propeller spin, let alone make it change directions.
2. Scientific explanations, indeed science itself, is methodologically naturalistic, so by method can not invoke supernatural causation to explain the apparently unexplainable. In science, all events have natural causes. It is this link between cause and effect that drives the probing eye of modern science. Religious explanations are rarely tested against physical reality. They rarely demand empirical evidence because the basis of religion is the practice of faith, not skepticism, empiricism, and logic. Religion and science are both potentially valuable methods of seeking knowledge, yet each is very different. One is not better than the other.
3. Science deals with cause and effect relationships based on the laws of nature. (It is important for teachers/students to distinguish science from non-science)
4. Pre-scientific cultures may have supernaturalism as their prevailing paradigm. And since religion, in one form or another, seems to be more intimately woven into the cultural fabric of societies, they are vital to defining social status. mores, etc.
5. Most students will be very tentative about their explanation. This is good, and models science well. The tentative and contingent nature of science is well demonstrated when individuals offer models, and then subject them to peer review/comment. Students will find that by collaborating with others they may modify their hypotheses and may actually feel they have approached a more accurate explanation.

6. Hopefully, the students will intuitively realize that the absence of evidence for one view is not evidence for another view. Such false dichotomies exist all around us in political campaigns, socio-political debates such as the "creation-evolution controversy", product promotions, and many other areas of daily life. Helping students with this realization will make them effective citizens and savvy consumers.
7. Duplicating claimed psychic events with natural physical processes does not eliminate the possibility of supernatural causation. However, science always looks for the simplest explanation, "parsimony". It is far more likely that the laws of physics can explain the phenomenon than the presence of some unseen, supernatural and unmeasurable force.

Additional resources:

1. Video: NOVA, Secrets of the Psychics (Magician and McArthur Fellowship winner James Randi explores the claims of psychics and puts them to scientific tests) 60 min. (1993) web site: <http://www.randi.org/jr/ptspoon.html>.
2. Video: Galileo: The Challenge of Reason. (The Shaping of the Western World Series:) Outstanding video productions recreate the human drama and spectacle of history. These productions are of feature film caliber, starring well-known actors and filmed in actual historical locations around the globe. Scholars from the world's greatest universities acted as consultants). 30 min. (1978) \$59 from Coronet/MTI, 800-221-1274.

How it's done:

For the best results, hold the thinner (rubbing) stick with your index finger hooked over and slightly around the larger dowel, and with your thumb of that hand alongside the rubbing stick, pointing at the larger dowling, so that your thumb and forefinger can alternately touch one side or the other of the larger dowel. Hold the larger dowel firmly at the end opposite the propellor, with the notches up. You will find that, with a little practice, while moving the thinner stick back and forth over the notches, you can subtly shift it away so your thumb touches the large dowling, or shift it back so your hooked finger touches the large dowling. For some reason, this slight shift is sufficient to determine the direction of propellor rotation! Say the "magic" word "Hooey" as you make this little change. Never reveal this to your students. If anyone happens to figure it out, (or somehow controls the propellor motion in like fashion), say "I think you've got the magic." If seriously (or privately) pressed, you can ask "Can you explain, in terms of physics, how it works?"





PSYCHIC CENTERS OF AMERICA

777 Lucky Avenue
Manitoba, Canada, NB 349

March 1, 1999

Mr. John Banister-Marx
Camp Verde High School
P.O. Box 728
Camp Verde, AZ 86322

Dear John,

Thank you for your request for sets of our Magic Hooey Sticks. We think that you will agree that they are the finest quality and possess the most active Hooey spirits that money can buy. To activate any of your Hooey Sticks begin by chanting the following mantra:

Itzabeem locotada manzuneetee kolaseetseim

Once you have chanted the magic mantra several times you are ready to begin. Merely rub the serrated stick with the thin stick and the small propeller will turn. You can then test your psychic abilities by saying the word "Hooey." If you are concentrating fully, you will be able to change the direction of the propeller. People with especially strong psychic abilities have even been reported to be able to communicate telepathically to get the Magic Hooey Stick propeller to reverse direction.

Should you have an interest in checking the scientific periodical literature regarding the proven nature of the Magic Hooey Stick we recommend that you obtain a copy of either of the following:

Bosonovich, Ima. "Quantitative Experimental Analysis of the Psychic Nature of Rotation in a Magic Hooey Stick" Journal of Scientific Inquiry. vol. 712. March. 1994. pp39-44

Trictya, Shoulda. "Enzyme Analysis of Spirit Entities Regulating Reciprocating Rotational Inertia of a Magic Hooey Stick." True Science Magazine. November. 1995.

Thank you so very much for your money and your interest.

Sincerely,

Yora Nideot
Customer Relations
Manitoba, Canada, NB 349

Name _____

Period _____ Date _____

Investigating the Magic Hooey Stick

After investigating and attempting to master the psychic forces of the Magic Hooey Stick, answer the following questions:

1. Were you able to make the Magic Hooey Stick respond to your commands?
2. Explain the difference between a scientific explanation and a supernatural explanation. Is one explanation "better" than the other? Explain your position.
3. Why is a *supernatural* explanation for the motion of the Magic Hooey Stick not acceptable in a *science* class?
4. Why would some cultures actually prefer one type of explanation over another?
5. What is your scientific explanation? How sure are you that your explanation is the correct explanation? What else could you do to increase the confidence in your explanation?
6. If someone were *unable* to collect scientific evidence to explain how the Hooey Stick works, does this absence of evidence provide "proof," for the claim that the Hooey Stick operates under influence of psychic powers? Explain why or why not?
7. If someone were *able* to develop and verify a scientific explanation for how the Hooey Stick works, does this necessarily eliminate the possibility of a supernatural cause for your teacher's ability to make the stick move? Explain.

Extension: In a pre-scientific age an appropriate explanation for the Magic Hooey Stick might have focused on its mythical origin and some moral lesson or theistic power. Develop a one paragraph myth that is relevant to some culture (real or fictitious) and does not attempt to be scientific, but is emotionally pleasing, morally instructive, and socially reassuring.