

## THE SCIENCE CHALLENGE!

Praxis—The Science & Technology Hotline and the Medicine Hat News are proud to be able to present the Science Challenge 2005/2006 once again. The Science Challenge is open to all junior and senior high students in Medicine Hat and surrounding areas.

Student submissions can be written to inform, explain, teach or express an opinion about an issue in the field of science and technology. When researching and writing your submission, think about the impact it may have on society, the environment or even yourself. If possible, your submission should also emphasize your topic's importance or connection to Canada, Alberta and southeastern Alberta. Suggestions for

topics can be viewed on the Praxis website.

submissions should be a maximum to 350 words in length, typed and preferably submitted in electronic format and/or print form. Please include your full name, address, school, grade attended, phone number and email address if applicable.

A list of all references and resources must also be provided.

Send all submissions to:

Praxis  
c/o 200 7th street S.W.  
Medicine Hat, Alberta  
T1A 4K1

Email:  
mhpraxis@telusplanet.net  
There will be a winner se-

lected from all entries selected each month. Articles will be selected for publication based on the following criteria

-accuracy of information presented

-originality and creativity

-spelling, structure, grammar, etc

The judges decisions will be final. Enter as often as you wish, but winning submissions will be limited to two per person for the year.

Your hard efforts will not go without fame and fortune.

Each winning submission will receive a \$200.00 prize.

At the end of the year all winning submissions will have a chance to win the \$1000.00 grand prize.

### Interesting Science Facts about Alberta:

- Alberta has the nation's first high voltage, fully operation fuel cell. The Northern Alberta Institute of Technology installed the fuel cell. It will combine hydrogen and oxygen to produce electricity and heat. This should save energy costs of \$51,000 a year and reduce greenhouse gas emissions by 65%. Visit [www.nait.ab.ca/fuelcell/](http://www.nait.ab.ca/fuelcell/) for more information.
- The National Institute of Nanotechnology is located at the University of Alberta. This facility focuses on finding ways to engineer molecules that are 50,000 times smaller than a human hair. Visit [www.nint.ca](http://www.nint.ca) for more information.
- One of Canada's largest wind farms is located near Fort Macleod. It has 114 wind turbines, 75 megawatt electricity generating facility and can produce about 235,000 megawatts of electricity per year. This is enough power for 32,000 homes. Visit [www.transalta.com](http://www.transalta.com) for more information.

## SCIENCE FAIR 2006

The Kiwanis Science Fair will be held at the Medicine Hat Mall this year on March 25th, 2006. The deadline for registration is March 10th.

On November 16th there will be a presentation on Science Fair—planning, where to get ideas, et cetera at the Library from

7:00—9:00 in the evening. If you wish to attend you must pre-register. All students must be accompanied by someone over 18 years of age. There is no charge to attend.

You can pre-register by calling Carolanne at the Library 502-8532 or Linda at Praxis 527-5365.

## MINERVA

Operation Minerva will be held once again on January 27, 2006. This provided a great opportunity for female students to pair with a mentor that works in the fields of science and technology to learn more about what opportunities are available for female scientists.

Visit the Innovation and Science website @ [http://www.innovation.gov.ab.ca/general/events/eve\\_001\\_1.cfm](http://www.innovation.gov.ab.ca/general/events/eve_001_1.cfm) for more exciting science information.

# DISCOVERING SOUND

Discover how sounds change as they travel through different mediums.

## Materials

string  
tape  
3 metal spoons  
scissors  
ruler/meter stick

## Procedure

1. Measure out one meter of string and cut.
2. Lay the string out on a flat surface. Stretch it out.
3. Take one spoon and place it in the middle of your string.
4. Tie a knot around the spoon with the string. You may also want to put a piece of tape on it for extra reinforcement.

5. Take the second spoon and place it 10 centimeters away from the spoon you placed in the middle.
6. Tie it to the string, just as before.
7. Measure out 10 centimeters from the middle spoon in the other direction.
8. Place the third spoon on the string and tie the string to it as well.
9. Carefully lift up the spoons and hold one end of the string in one hand and the other end in your free hand.



10. Listen to the sounds the spoons make as they hit against each other.
11. Now, carefully wrap the string around your index finger's) twice.
12. Stick your fingers in your ears.
13. Bend over and allow the spoons to hit together.
14. What do you hear now?

## Explanation

The first time you listened to the spoons, the sound waves were traveling through the air. As the sound waves travel through the air, they lose strength and you hear a "tinny" sound.

The second time you listened to the spoons, the sound waves were traveling through a solid, the string. This in turn made the spoons sound much deeper.

# HOW CAN YOU HEAR ME?

Without ears, you would be unable to hear. The world around you would be very different. Investigate how your outer ear and eardrum work together.

## Materials

8 1/2 " x 11" sheet of paper  
scissors  
tape  
plastic wrap  
cake pan  
rubber band  
few grains of rice  
wooden spoon  
saucepan

## What to do...

1. Roll the piece of paper into a cone shape.

2. Tape it so that it will not unroll.
3. Carefully place the cone up to your ear.
4. Listen to some sounds around you (i.e. the clock ticking, someone talking at a normal level).
5. Take the cone away from your ear and listen to the same sounds.
6. Can you hear better with or without the cone?
7. Now take a piece of plastic wrap, stretch it over the cake pan and secure it there with a rubber band.
8. Place a few grains of rice on top of the plastic wrap.
9. Hold the saucepan near the "drum" you made. Gently tap the saucepan with the

wooden spoon.

10. Watch what happens to the rice after you hit the saucepan.

## What is going on?

The cone you made allowed you to hear much better. This is because the cone is able to gather more sound waves than just your ear alone. It then funnels them into your ear.

The second part of the experiment allowed you to see how an eardrum works. When you hit the saucepan with the wooden spoon, the sound waves moved through the air to the rice on the "drum" and made the rice vibrate. This is similar to how your eardrum would vibrate.



How do you hear?

For all of your science questions or needs, contact  
Praxis :  
p/f: (403) 527-5365  
e: [mhpraxis@telusplanet.net](mailto:mhpraxis@telusplanet.net)  
w: <http://www.telusplanet.net/public/mhpraxis>