

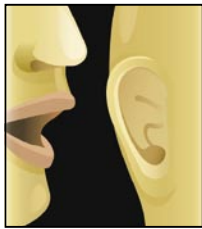


Discovery Lesson

TEACHER ENRICHMENT RESOURCE PACKET

Communication! Coming in Loud and Clear

September 19 - November 29, 2009



Insects release pheromones, flowers attract pollinators, and humans chat on cell phones. Communication is critical for survival. Examine animal colors and sounds, the history of human communication, and the technology that is changing the way we connect.

Learning Objectives:

- Humans and animals use their senses, especially sight, smell, and hearing, in communication.
- Some people lack the ability to use one or more of their senses.
- Humans have developed language and writing as a way of communicating information.
- Animals communicate using various sounds, scents, and visual symbols.
- Plants communicate with animals and amongst themselves.
- Humans have developed technological devices for communicating information over long distances.

Think it.
Try it.
Explorit.

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Background Information on "Communication"

Thank you for choosing Explorit Science Center's *Discovery Lesson* program to supplement your on-going science curriculum. Whether you use the program to kick off a new unit, wrap up a nearly completed unit, or purely to excite and interest your students in the wonderful world of science, advance preparation and follow-up with your students are critical to achieving the greatest educational benefit from this unique science experience.

Explorit provides two resources to help prepare you and your students for the *Discovery Lesson*. First, simple logistics of the program are detailed in the confirmation letter. Second, this Teacher Enrichment Resource Packet (TERP) outlines appropriate science content and processes to help you:

- successfully prepare your students prior to visiting Explorit;
- participate fully in the *Discovery Lesson* yourself
- follow-up with your students back in the classroom.

Each time you enter a classroom and interact with students, you are communicating with each other on three levels: body language, voice tonality, and via words. If someone were to ask anyone in the room which of those three forms of face-to-face communication shared the most information, a likely response would be "words" since we often perceive them to be the most important tool when communicating. However, you may be surprised to discover that people actually get more out of an interaction from body language.

Research has shown that when actively communicating, or being engaged in the process of passing information from one entity to another (ie. sharing), humans, at least, place 55% of the message into body language, 38% into voice tonality, and 7% into actual words. Yet, we often put the most emphasis into finding the correct words. Presumably, this is because if our brains were waiting for a particular, logical set of words and then a completely out-of-context set came out of someone's mouth, (but the body language and voice tonality were correct) our initial reaction might be normal. However, a split-second later we would probably display utter confusion.

In fact, in our increasingly-technological world, this problem often appears, primarily when interacting with others via a computer screen using an instant messaging program or similar thing. One person might type a seemingly rude or angry message to you, but, in reality, the missive was meant to be sarcastic or playful. Thus, the use of words alone is almost never enough if you desire to be a good communicator.

A similar experience can even occur on a telephone call since there is no visual component. More often than not, words and voice tonality can be enough to adequately carry on a phone conversation, but what if you are speaking with a person who always sounds upbeat and is saying words that belie how he/she truly feels? The person in question might actually be feeling quite sad, something that



could potentially be seen on their face or in their body mannerisms (eg. slouching shoulders, droopy posture, red eyes, etc.).

The overall point is that communication often occurs on a multitude of levels, some of which can not be seen, such as chemical communication which is used by some animals, but almost all plants, fungi, and even single-celled organisms. The world around us is constantly conversing and every now and then it is a good idea to stop and "listen" to the roses.

Classroom Activity #1



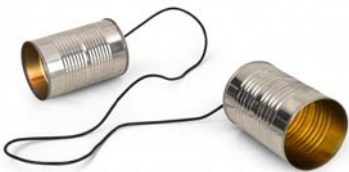
ACTIVITY #1: Communication Identification

Think It: In order to communicate, something must be shared. There a number of ways to do this using yourself or things around you.

Try It: You'll need thinking caps and a classroom. Students will either be called on to name a part of their body, an object, or a device in the vicinity that could be used for communication purposes or they could generate a written list. They could also be challenged to think of other devices that they interact with on a daily basis that could also be used for communication.

Explorit: What kind of message could be sent using the body part, object, or device they have chosen? Would it really work? How complex could they make the message?

Classroom Activity #2



ACTIVITY #2: Handwriting Analysis

Think It: Our handwriting styles are like fingerprints, no two are exactly alike. Can the class identify someone's handwriting style?

Try It: You'll need a board or a wall where things can be taped, tape and paper (if no board is present), a dry erase marker or chalk (depending on the board type), paper scraps, pens/pencils, a container, and some volunteers. Now, call up some volunteers (4 or 5) and have them write their name on the board or the paper large enough for the class to see. Next, have them write a simple phrase on the piece of scrap paper using the pen/pencil. Instruct them to place it into the container. Now, call on 4 or 5 more volunteers to come up and be "detectives" and have them draw one of the paper scraps out of the container and allow them to match it to the name on the board. Also, have them and the class look for "tells," unique characteristics (extra loops, unusual curving, all caps, etc.) in the board words.

Explorit: How difficult was it to identify the writing style of the various people? What was just undertaken by the detectives is a type of forensic analysis, often used in investigations into fraud or forgery. A possible twist might be to somehow secretly instruct one or more of the initial volunteers to deliberately change his/her handwriting style on either the first or second part of the game to see if it makes a large enough difference when it's the detective's turn.

Classroom Activity #3

ACTIVITY #3 Utilizing the 5 Senses



Think It: We have 5 senses (sight, hearing, smell, touch, and taste), but often rely on only a few of them when there is so much to be gained from using as many as possible.

Try It: You'll need a good indoor/outdoor spot with at least one unique thing for each sense (except, perhaps, taste) to experience. Bring everyone to the chosen location and have them spread out. Encourage them to use as many of the senses as possible except, again, for the possibility of taste, which should ONLY be used, of course, on things that are safe to be placed into the mouth. Encourage them to really focus on the sensation(s) of what they are seeing, touching, etc. and have them share this experience with you and their classmates. Also, instruct them to alert other kids to what they are seeing, smelling, etc., so they can share in the experience. When they have had a while to get acclimated to the area, have them start using only one sense at a time and directed towards the previously-mentioned unique thing. For example, if there are flowers in the area, perhaps, pluck one or a few in secret, have them close their eyes (no sight), cover their ears (no sound, keep their hands by their sides (no touch), and bring the flower by each kid's nose. When finished, alert all that it is time to use all senses again either by gently tapping them on the shoulder or speaking loudly. While hiding the flower, ask if anyone is able to identify the smell. Do a similar experiment, if possible, with each sense. (If nothing in the area will work for this aspect of the exercise, simply have them eliminate one sense in rotation (eg. close eyes, use other senses, then open eyes and then pinch nose, etc.) and just focus on the area around them. Finally, have everyone share their experiences.)



Explorit: Were they able to learn anything new about their surroundings? What happened when one or more senses was eliminated? Did it heighten their awareness or stunt it? What it would like to actually be deaf, blind, or have one of their other three senses removed? Would it be similar to what they just experienced?

Science Standards

CA STANDARDS

Physical Science (K-1a, 2-1acdg)

Life Science (K-2ab, 1-2ac, 2-2f, 3-3a, 4-3c)

Investigation and Experimentation (K-4abcde, 1-4bde, 2-4acdfg, 3-5abcde, 4-6acdf, 5-6bh, 6-7abe)

NATIONAL STANDARDS

K-4: A, B, C, E, F, G; 5-8: A, C, E, F, G

Explorit Programs for Schools and Groups

At Explorit's Sites

Discovery Lessons & Inquiry Labs Visit one or more of our Changing Exhibitions throughout the year.
Nature Safaris & Labs Fall and Spring visits to Explorit's indoor and outdoor spaces at Mace Ranch Park

Explorit in Your Classroom

Classroom Adventures Science Investigations for Grades K-6 that come to you.
Young Scientist Series Science investigations through multiple visits at your location.

For the Whole School

Health in Your World With your local community's participation, learn about keeping your body and the world healthy and safe.
Science in Your World The ultimate family science night that's just right for everyone!
Science Assembly A multi-media presentation for the whole school.

Reservations required.
For information please call
530.756.0191

HOW TO CONTACT US



Location: 2801 2nd Street, Davis
Phone: 530.756.0191
Fax: 530.756.1227
E-mail: explorit@explorit.org
Web: www.explorit.org