



HOW TO USE THIS GUIDE

- 1 Duplicate the DFTV student pages (pp. 3–6), and distribute them to your students. Read the questions posed by the young scientists. Encourage your students to describe how they would investigate the questions. Guide them through the steps of developing an inquiry (see below).
- 2 If you have videotapes of the episodes featured in this guide, play them to see how the DFTV kids investigated the questions, and what their results were. The investigations are also described on page 7 of this guide and on the DragonflyTV Web site. Apply the ideas learned in the DFTV example to the classroom activity “Do It, Get To It,” or encourage students to do the investigation described in “Take it Outside!”
- 3 If your students develop investigations of their own, encourage them to visit the DragonflyTV Web site, www.dragonflytv.org. On the link titled “Be On DFTV” they can describe their investigation and they’ll be considered for the next season of DragonflyTV!

OBSERVATIONAL

1. Write the question: How does A compare to B? Make a hypothesis.
2. Decide what to measure or observe for both A and B, and how to do it.
3. Make multiple observations when possible. Record all results.
4. Organize the data in a table or chart, looking for differences or similarities.
5. Write an answer to the original question. Also write down any new questions that come up during this investigation.

EXPERIMENTAL

1. Write the question: If I change A, what happens to B. Make a hypothesis.
2. Choose the independent variable (the thing you change) and dependent variable (the thing that is affected), and how to measure them.
3. Do multiple trials when possible.
4. Organize the data into a table, and prepare a graph. Look for patterns or trends.
5. Write an answer to the original question. Also write down any new questions that come up during this investigation.



Student Page

308 / Health: Do therapy dogs reduce a kid's experience of pain?

What's Up?

I'm Jeff, and I'm doggone crazy about my two pooches, Jasmine and Nova. From my own experience with cancer, I know that they always make me smile, even on my toughest days. Now I want to know if pets can help other kids who have to fight off pain and stress. My question: Can interacting with a furry friend help lessen or eliminate pain in kids undergoing a medical procedure?

How Would You Investigate This Question?

Conducting investigations with human subjects can be tricky. Where would you find a number of kids who you know are facing pain? At the doctor or dentist office, perhaps? How would you get permission to have them participate in your study? Decide what sorts of variables you would keep constant, such as age of the test subject, or what kind of therapy animal you are going to use. Come up with a way to "measure" the amount of pain the subjects are feeling. Describe your ideas in your notebook. Then discuss them with your teacher, or go to www.dragonflytv.org to learn how Jeff did his pet therapy investigation.

Do It, Get To It

Study how music affects people. Learn to take a person's pulse rate. Put headphones on your test subject, and take your subject's pulse rate with no music in the headphones, then play the first style of music through the headphones for a minute, and take the person's pulse rate again. Try several styles of music.

Take It Outside!

Collect pictures out of magazines or off the Internet of all kinds of different animals. Make up a "faces scale" that has these four faces: mad, sad, glad, and scared. Have your friends take turns looking at each of your collected pictures. Then ask them to point to the face on the scale that best represents how they feel when they look at each picture.

Go to www.dragonflytv.org, "Be On DFTV," and tell us what happened!



About the DFTV Investigations

(for the educator)



Educator Page

WHITEWATER RAFTING NATIONAL SCIENCE EDUCATION STANDARD

Earth Science Grades K–4:
Changes in Earth and Sky
Earth Science Grades 5–8:
Earth's History

The four boys took a guided raft ride down the American River. They walked off 100 paces along the river bank in a calm stretch, and along a rapids. They estimated the elevation change over that stretch by comparing GPS readings at the beginning and end points with information on a topographical map. They also dropped a flotation device into the water and timed its run through that stretch of river. They found a much greater elevation change in the rapids compared to the clam area. They also looked at water flow direction around eddies, tongues, and holes (three river rapid features), to learn what forces would be acting on them as they rafted through.

A river investigation like this is difficult to set up, but look for smaller scale versions using a nearby stream or creek. For more details on this investigation, visit www.dragonflytv.org.

HORSE EARS NATIONAL SCIENCE EDUCATION STANDARD

Life Science Grades K–4:
The Characteristics of Organisms
Life Science Grades 5–8:
Regulation and Behavior

Ting and Mallory studied the behaviors of more than a dozen horses, after Ting approached each wearing some horse ears she made. She approached the horses with no horse ears, then with ears facing forward, and finally with ears facing backward. She observed the horse's own ear position, and whether the horse was friendly or agitated. She found that the horses were generally more agitated when she wore the ears. Further, wearing them in the back position, the horses were particularly uneasy. Horses put their own ears back to symbolize aggression, and Ting's horse ears seemed to convey the same thing.

Invite your students to spend some time carefully observing animal behavior in a controlled setting, whether it's a dog, cat, gerbil, or goldfish. Talk with your students about resisting the temptation to assign human attributes to animals. For more details on this investigation, visit www.dragonflytv.org.

SPEEDSKATING NATIONAL SCIENCE EDUCATION STANDARD

Physical Science Grades K–4:
Position and Motion of Objects
Physical Science Grades 5–8:
Motions and Forces

The four kids laid out a regulation short track turn on the rink (8 meter radius), then marked lanes at radii of 8.5, 9.5, and 10.5 meters. They each skated the three turns three times, while others recorded their time to complete the half-circle turn. Each skater reported his or her feeling of control. Their results varied, but generally they found that even though the "tight" radius is a shorter distance around the turn, skating that turn did not give them their fastest times. Moreover, they agreed it was difficult to "hold the turn", meaning, the forces on the skate blades necessary to stay in the tight radius were high, and they felt their blades might slip out at any moment. They found their best performance by skating the medium radius turn, balancing speed with control.

Circular motion can be a difficult concept for students to grasp. Give particular attention to distinguish centripetal from centrifugal forces. For more details on this investigation, visit www.dragonflytv.org.

PET THERAPY NATIONAL SCIENCE EDUCATION STANDARD

Life Science Grades K–4:
Organisms and Their Environments
**Science in Personal and Social Perspectives
Grades 5–8:**
Personal Health

Jeff received permission from parents of six young patients to participate in his study. Each child was facing a painful medical procedure that day. After receiving the procedure, Jeff assessed each child's pain level using a "faces" scale. Half of the patients then spent four minutes with Marley, the pet therapy dog, while the other four simply relaxed alone for four minutes. Jeff assessed their pain levels again. He found that the therapy dog patients demonstrated a greater reduction in pain than those who rested alone. Afterward, all the kids had the chance to spend time with Marley!

Jeff's project received a national award from the Discovery Channel Young Scientist Challenge. For more details on this investigation, visit www.dragonflytv.org.