



# My Science Journal

SPECIAL EDITION  
FUR, FINS & FEATHERS!



This journal belongs to:

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# DragonflyTV Animal Investigators

## 1. Jump Yip!

We're Julian and Sabrina, and we love to go to the zoo. The prairie dogs are one of our favorite animals. We noticed that they bark when they get scared. We wondered: How can we tell if prairie dogs make different barks?

- a. count the number of barks
- b. measure the loudness of barks
- c. analyze the barks on a computer



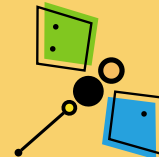
1. C: We found software that "looks inside" the bark, to find differences that our ears can't hear. We found that the prairie dogs make much different barks depending on what they are scared by.

Answer

## 2. Baby Animals

We're Matt, Danny, and Kyndal, and we watch baby animals at the zoo. They don't stay babies for long! We wondered: Which grows the fastest, a cow, a chick, or a pig?

- a. cow
- b. chick
- c. pig



2. B: Even though the cow gained the most weight, the chick increased its weight the most, compared to when it was born.

Answer



Check out other animal investigations  
on pages 5, 11, and 13!

# Can you find all 31 DragonflyTV Investigations?



Look vertically, horizontally, and diagonally!

BABY ANIMALS  
CIRCUS STUNTS  
CROCODILES  
EXERCISE AND MEMORY  
EXTREME SOUNDS  
FISH POPULATION  
FREERIDE SKIING  
GPS VS COMPASS  
HIP HOP MIX  
ICE SKATING

KART RACING  
MANATEES  
MODEL ROCKETS  
MOUNTAIN BIKE  
PET HANDEDNESS  
PRAIRIE DOG CALLS  
ROBOT WAR CONTEST  
ROVS  
SALMON RUN  
SAND DUNES  
SEA LIONS

SINK HOLES  
SNAKES  
SNOW SHELTER  
SOCCER BALL KICK  
STRAW HOUSE  
SUNSCREEN  
TURTLE RESEARCH  
WATERSKIING  
WORM FARM  
YOYOS

S I N K H S L L A C G O D E I R I A R P X  
E X E R C I S E A N D M E M O R Y V O P S  
G E K A R S A L M O N R U N E X S G R B E  
N O I T A L U P O P H S I F I E N A A A N  
I P B R E A S K S E A S A M L I I B A L U  
I S N A S E T S L E E T P I I R Y A P L D  
K T I C E S N Y E K L O D K O A K O E O D  
S R A G R U U E A O H O S C N S S U T S N  
E A T P E N T N S P C R H I O E S O H D A  
D W N S L S S O I O E L M K U A N G A N S  
I H U V T C S H R T Y A O L N L U G N U B  
R O O S R R U C A L L O P L A I T N D O G  
E U M C U E C W I S H T Y A H O S I E S S  
E S A O T E R O C V V E R B A N I T D E B  
R E N M A N I R I C K O A R L S E A N M O  
F J A P B O C M I L T O R E F O R K E E B  
W E T A A O O K A R T R A C I N G S S R S  
T T E S G R O B O T W A R C O N T E S T L  
P H E S T E K C O R L E D O M I L C E X E  
T R S R E T L E H S W O N S I M F I R E D  
R O C K S W O R M F A R M C H A I L U C Y

Learn about these investigations at [www.dragonflytv.org!](http://www.dragonflytv.org!)

## Do It, Get to it!

### Cartesian Diver



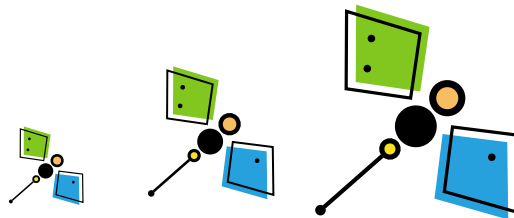
#### What?

Put the squeeze on a toy submarine!

**Materials:** A pen cap, a small lump of clay, an empty plastic water bottle with a screw top lid, and water.

#### How?

1. Stick the pen top into the piece of clay.
2. Put the top in the bottle and seal it tightly.  
The pen top floats!
3. Now squeeze the sides, and watch the pen top dive to the bottom!



Don't just sit there... get to it!

Squeezing the bottle increases the pressure inside the bottle and forces water into the pen top. This compresses the air trapped inside of the cap, and increases its density. When you squeeze hard enough, the cap sinks to the bottom. Releasing the bottle allows the cap to float again.

Why?

## DragonflyTV Word Scramble

How many words can you make from the letters in S-C-I-E-N-C-E F-A-I-R?

Use each letter only once, and try to make 3-, 4-, 5-, 6-, or 7-letter words.

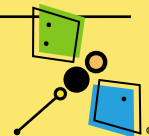



Check out the DFTV Science Fair Resource at [www.dragonflytv.org!](http://www.dragonflytv.org!)

## Science At The Zoo: Animal Defenses

Animals defend themselves in different ways. Some ways are obvious, like sharp teeth and claws, but others you might not notice, like camouflage colors or behavior. As you walk around the zoo, take a moment to look at each animal carefully to find how it defends itself.

Animal	Defends itself with (by)
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	



## Think About It



Look at the different ways color protect the animals at the zoo. Animal colors and patterns might help them blend in to their environment, or their colors and patterns might be a warning for other animals to “stay away!” Describe the colors and patterns you see on different animals, and write down how you think they protect this animal from predators.

Animal	Colors, Patterns	Camouflage, or Warning?
--------	------------------	-------------------------

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

## Try this: Test Your Memory!

How good is your memory? How would you measure your memory? Try this out: Collect 30 small household items, things like a paper clip, a bottle cap, a pencil, a toy car... everyday stuff you have around the house. Have a friend select twenty of those things without you watching and set them on a table, then cover them up with a dish towel. When you are ready, uncover the items and stare at them for one minute, then cover them up. Write down as many of the things as you can remember.



Investigate whether you have a sharper memory at one time of day compared to another. Here's how:

1. Log on to the DFTV Web site at [www.dragonflytv.org](http://www.dragonflytv.org). Click on Try This, and choose What Time of Day is Your Memory Best.
2. Play the memory game, and write down your score. Write down the time of day.
3. Play the game again at a different time of day. If you first tried it at 3:00 in the afternoon, then try at 7:00 at night, or 8:00 in the morning. Keep track of your score each time you play.
4. Look at all your scores, and see if you can find any patterns. Are you most alert in the morning, or do you get a better score in the evening? Will you get different results if you take the test on Wednesday, compared to Saturday? How many tests should you take to get a result you are certain about?

Click on the View Results button, and look at the scores for all participants from your state, or all kids your age!





# How can you keep a ship from rocking in the waves?

Crack the code to find the answer. Each picture stands for two possible letters. Solve the code, and figure out how to keep a ship from rocking in the waves.



= A or Y



= F or O



= W or I



= G or P



= C or L



= R or S



= D or M



= T or U



= E or N



= H or V

---	---	---	---	---	---	---	---	---	---	---	---	---	---
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Log on to [www.dragonflytv.org](http://www.dragonflytv.org) and click on Riddles & Games to see for yourself!

Answer: Fill one end with water so it tips vertically!

## Do It, Get to it!



### Charge it!

#### What?

Bend a stream of water without touching it!

**Materials:** A comb, your hair, and a water faucet.

#### How?

1. Turn on the faucet, so you get a gentle stream of water.
- 2.. Comb your hair a few times, especially on a dry day with low humidity.
3. Quickly bring the comb near the water, and watch the stream move toward it.

Everything around us has positive and negative charges. When you comb your hair, the negative charges leave your hair and collect on the comb, giving it extra negative charges. Water molecules have positive and negative charges, too. Similar charges repel each other, but opposite charges attract. When the negatively charged comb comes near the water, it attracts the positive part of the water molecules, and pulls them near. See the comb pull the water stream toward it!

Don't just sit there... get to it!

Why?

## Super Sound Effects

When you're watching a movie or TV show, you may not even realize how many sound effects are used to make the story more realistic. Pretend that you are a sound effects artist, and find everyday ways to make the effects for these sounds. Try the sound effects on a friend. Write down what you tried.

- a. breaking down a door
- b. horse galloping on a dirt road, then in the meadow
- c. a whoosh noise
- d. footsteps crunching in the snow
- e. flapping bird wings

Making realistic sound effects is both an art and a science. The art is telling the story in a convincing way, making the listener believe what they are going to hear is real. The science is paying attention to sound characteristics of loudness, duration, and pitch, and finding ways to make just the right combination.

- a. Crumple a foam picnic plate
- b. Pound coconut shells on a tray of sand,
- c. Quickly wave a thin stick through the air then on your chest
- d. Pound a sealed plastic bag filled with corn starch
- e. Slap two leather gloves together quickly

### Answers



Learn about other science riddles at [www.dragonflytv.org!](http://www.dragonflytv.org!)

## Science At The Zoo: Animal Feet!

Webbed feet, padded feet, feet with claws, feet with feathers.  
Why do different animals have different feet? When you go  
through the zoo, take a look at each animal's feet.

	<u>Animal</u>	<u>Feet</u>
Example:	Crane	toed, clawed
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____



## Think About It

Now think about this: How do each animal's feet help it live in its environment? Put each animal from page 11 into the category that best describes how its feet help it live in its environment. You can put an animal into more than one category.

<b>Hunt</b>	<b>Fish</b>
<b>Swim</b>	<b>Dig</b>
<b>Jump</b>	<b>Climb</b>
<b>Defend Themselves</b>	<b>Hold things</b>

## Science At The Zoo: Something's Fishy!

Find a flat fish, a long fish, a short fish and a skinny fish. What other shapes can you find? Draw the different fish shapes here.

Find and watch three fish, each with a different body shape. Do you think these fish are adapted to live in the same part of their habitat (like near the surface, on the bottom or near rocks)? Watch them to see where in the exhibit each one spends most of its time. Describe how body shape may help each one live in a certain part of the aquarium.

**Fish Shape**

**Where it Lives**

1. \_\_\_\_\_

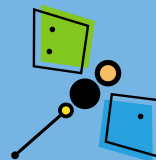
1. \_\_\_\_\_

2. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

3. \_\_\_\_\_



Watch a fish for one minute. Describe what it looks like.  
What does it do? Where does it go? Write down what you see.

**What it looks like:**

**Where it went:**

**What it did:**

Look throughout the aquarium and look for fish that live in groups, and those that seem to swim alone. What advantage is there for swimming in a group? For swimming alone?

Fish	Group, or Alone?
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____



## DragonflyTV Themes

DragonflyTV is all about real kids, just like you, doing REAL SCIENCE! Check your local PBS listings to tune into episodes on these great topics:

### SEASON 1

- 101: Investigate!
- 102: Wheels
- 103: Animal Behavior
- 104: Water
- 105: Rocks
- 106: Flight
- 107: Weather
- 108: Technology
- 109: Plants
- 110: Air
- 111: Human Behavior
- 112: Space
- 113: Human Body

### SEASON 2

- 201: Investigate!
- 202: Structures
- 203: Sports Science
- 204: Spinning
- 205: Propulsion
- 206: Human Body
- 207: Sound
- 208: Technology
- 209: Ecosystems
- 210: Underwater
- 211: Mammals
- 212: Earth Systems
- 213: Creepy Crawlies

If you have great investigations, DragonflyTV wants to know about them!  
Visit our Web site at [pbskids.org/dragonflytv](http://pbskids.org/dragonflytv), or write to us at:

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