



TEACHER ACTIVITY PACKET

When students have fun with science, it can suddenly become a lot more interesting. We encourage you to use this Activity Packet to extend classroom learning. It is intended to be used in conjunction with the live performance of **Professor Gizmo's Fun and Science Show** and Professor Gizmo's Study Guide found at www.GreatShowsforKids.com. The activities on the following pages have different levels of difficulty for grades K-6. We recommend that you save these for after the show when the kids are "psyched" about how cool science can be.

WHAT A GEM!

Many minerals form beautiful crystals, but the most prized of all are gemstones. Uncut gems often appear dull and ordinary looking. It's only when they are cut and polished that they obtain the brilliance and luster that makes them so valued. Gemstones are valuable because they are rare and are so hard that they almost never scratch. The most valuable gems are diamonds, emeralds, rubies, and sapphires.

The tradition of birthstones started over 2,000 years ago! People have always been enchanted by beautiful gemstones. In the chart below write the name of each student in the row of the month they were born. Then share amazing facts about each gemstone.

JANUARY <i>Garnet</i>	
FEBRUARY <i>Amethyst</i>	
MARCH <i>Aquamarine</i>	
APRIL <i>Diamond</i>	
MAY <i>Emerald</i>	
JUNE <i>Pearl</i>	
JULY <i>Ruby</i>	
AUGUST <i>Peridot</i>	
SEPTEMBER <i>Sapphire</i>	
OCTOBER <i>Opal</i>	
NOVEMBER <i>Topaz</i>	
DECEMBER <i>Turquoise</i>	



Myths and Legends about GEMSTONES

Crystals, minerals and metals have played various roles in the myths and legends of human cultures throughout history. What gemstone could make heroes stronger?

Amethyst - Saint Valentine wore an Amethyst. It is believed to convey peace, and serenity.

February
Amethyst



Garnet - Crusaders used this gem for protection from injury. Ancient warriors thought it would bring victory.



January
Garnet

Diamond - Romans wore diamonds because these were thought to possess magical powers of strength, bravery, and courage during battle.

April
Diamond



Aquamarine - was favored by sailors because of its sea blue color. They wore it as protection from the perils of the sea and symbolized courage.



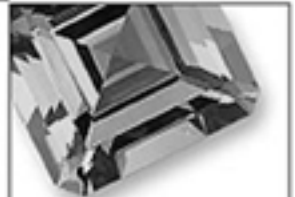
March
Aquamarine

Pearl - Long known as the "Queen of Gems". In China, pearls were thought to be raindrops swallowed by oysters.

June
Pearl



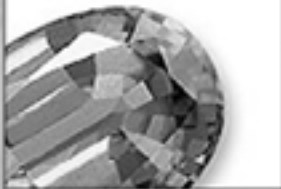
Emerald - was believed to ward off sickness, the green represented life, which is renewed in the spring.



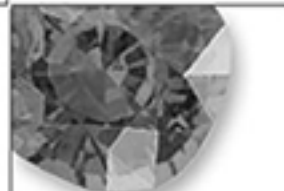
May
Emerald

Peridot - Early Egyptian priests drank a beverage called Soma from cups made of Peridot, believing it would draw them closer to Isis, the goddess of nature.

August
Peridot



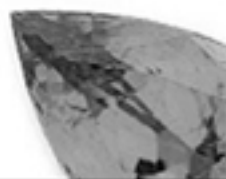
Ruby - if worn on the left hand, ancient lore has it that the Ruby will bring good fortune to its wearer. It is one of the most valuable gemstones.



July
Ruby

Opal - In ancient times, it was regarded as the luckiest and most magical of all stones because of its ability to showcase a multitude of colors.

October
Opal



Sapphire - were the gemstone of choice for kings and high priests. The British Crown Jewels are full of large blue sapphires.



September
Sapphire

Turquoise - Was considered by ancients to be a sacred stone, protective against all manners of evil and ill health.

December
Turquoise



Topaz - The ancient Greeks believed that it had the power to increase one's strength and make its wearer invisible in cases of emergency.



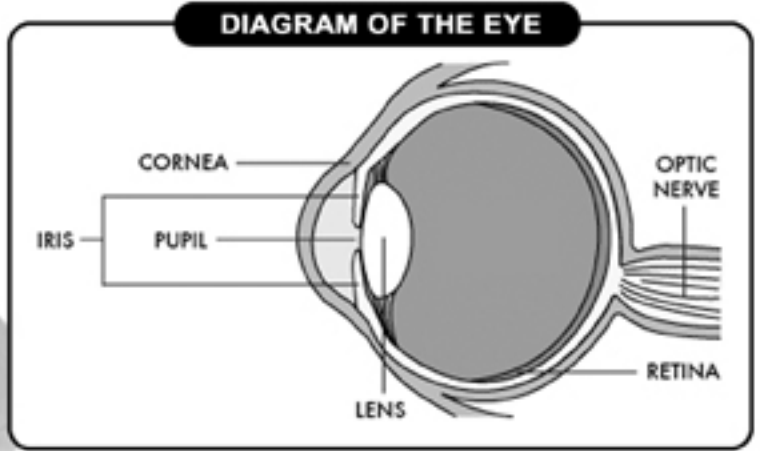
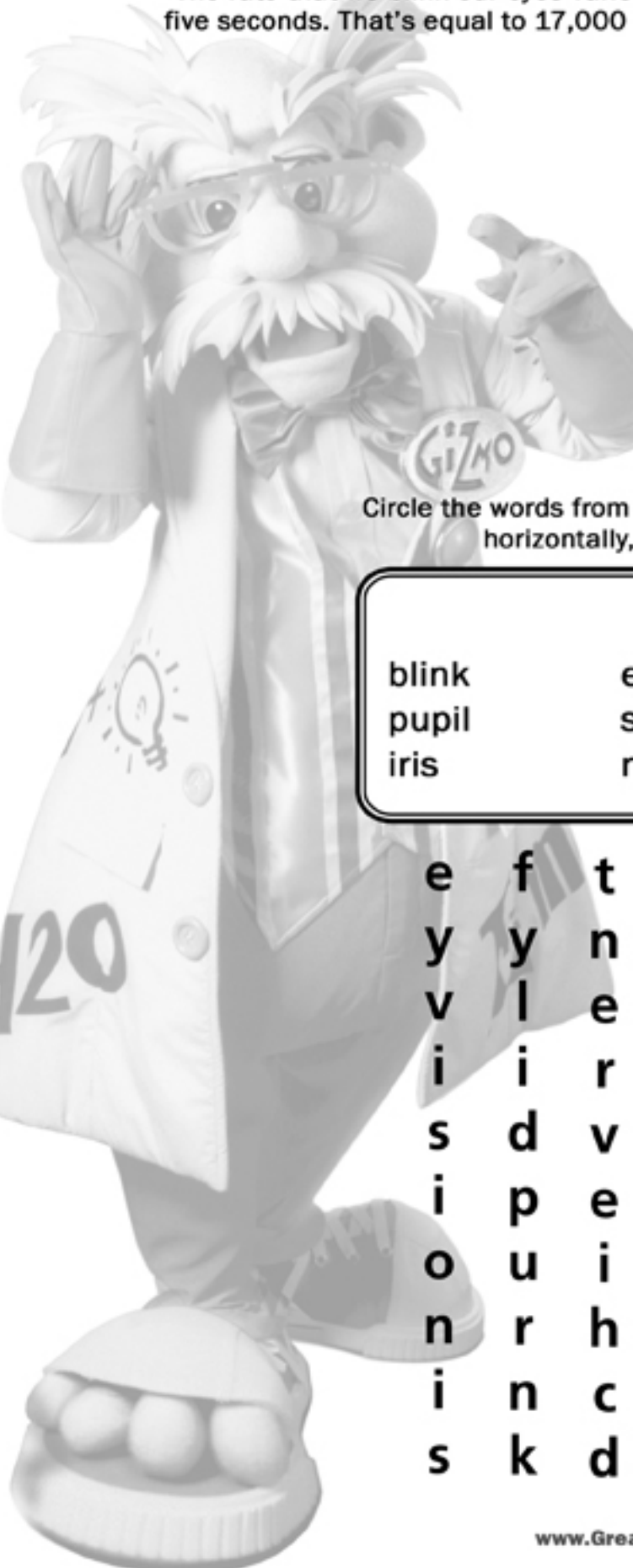
November
Topaz



THE EYES HAVE IT!

Grades
2-6

The rate that we blink our eyes varies, but on average the eye blinks once every five seconds. That's equal to 17,000 times each day or 6.25 million times a year.



Circle the words from the Word Bank in the puzzle. The words appear horizontally, vertically, diagonally, and backwards.

Word Bank

blink	eye	eyelid	lens
pupil	sight	vision	cornea
iris	nerve	eyelash	retina

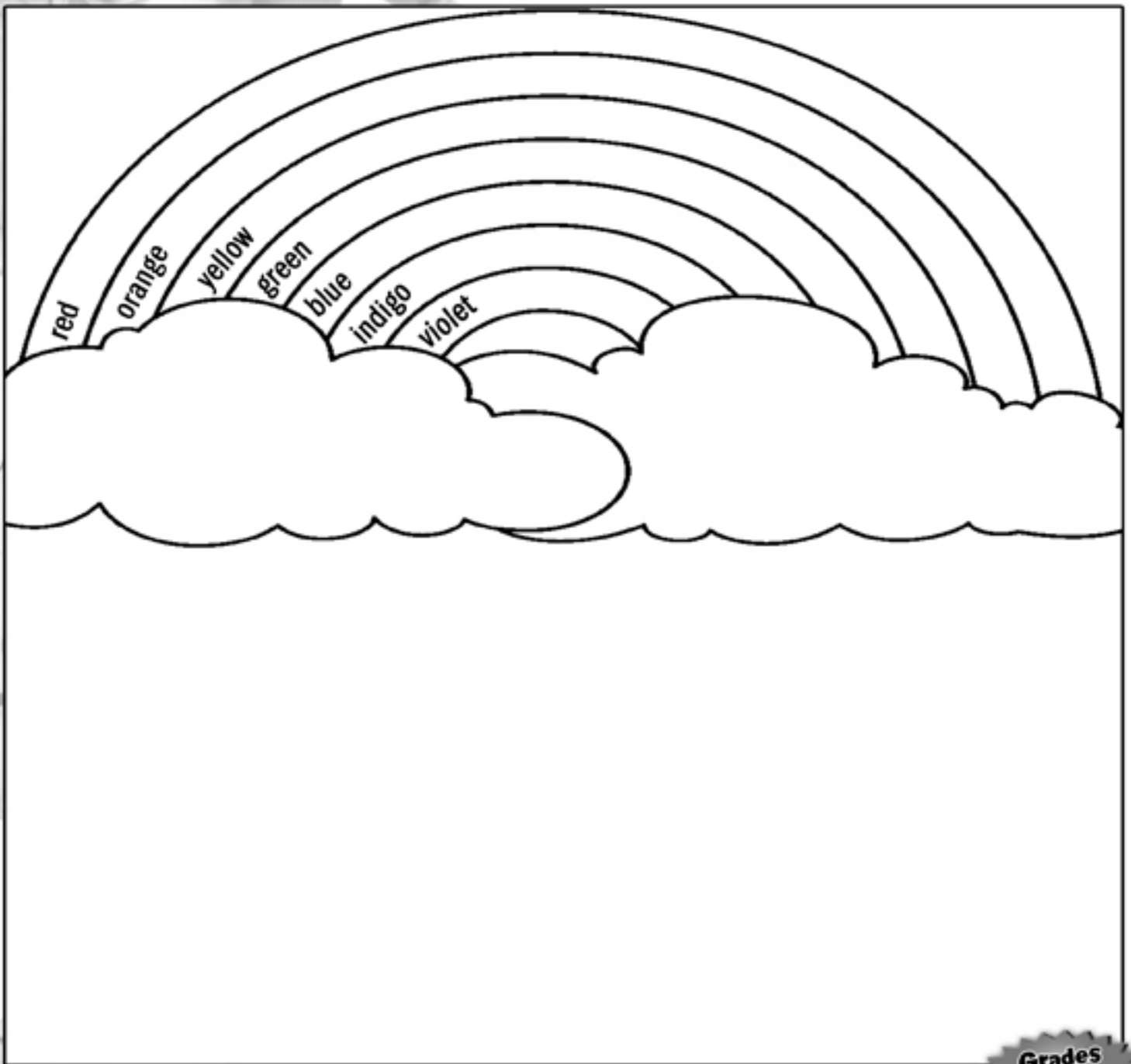
e	f	t	r	e	t	i	n	a	s
y	y	n	e	y	t	e	s	d	e
v	l	e	t	e	h	f	v	l	k
i	i	r	l	i	g	k	e	s	n
s	d	v	i	a	i	n	l	e	i
i	p	e	s	d	s	d	m	n	l
o	u	i	g	a	p	h	p	r	b
n	r	h	h	s	p	u	p	i	l
i	n	c	o	r	n	e	a	t	c
s	k	d	z	d	i	l	e	y	e

RAINBOWS

Sunlight is made up of many colors. We do not see the colors most of the time. When the sunlight meets raindrops, the sunlight breaks up into its different colors. When this happens, we see a rainbow in the sky.



Color the rainbow. Draw a picture of the first time you saw a rainbow.



Name: _____

Grades
K-3

WE NEED WATER

The heat from the sun causes water on the earth to evaporate, or turn into a vapor, and rise into the air. As this vapor rises, it cools, condenses into water droplets and forms clouds. Sooner or later, the water returns to earth in the form of rain, snow, sleet or hail.



When water strikes the earth, some of it returns to vapor through evaporation and some of it enters creeks, streams, and rivers. Eventually, this water makes its way into the oceans.

We need to make sure that we keep our waters clean and free from pollution. For fish and other animals to live and thrive, the quality of water is very important. When harmful things enter our waters, the waters become polluted. Polluted water cannot be used for drinking, swimming, or fishing. The key lies in eliminating pollution.

In the boxes below draw one picture to demonstrate a way water is being used wastefully. Then draw another picture of how we can use our water more wisely:



wasteful



wise

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Name: _____



How Do Birds Fly?

When a bird flaps its wings, air is pushed downward. This produces an opposite force that “lifts” the bird into the air. To take off, the bird needs to have lift, which means the force pushing the bird up must be stronger than the force pulling the bird down. Birds also rely on the shape of their wings to fly. The fast moving air on the top surface of the wing generates a lower pressure than the air moving over the bottom part. Lift is generated by the uneven flow of air over the wings.



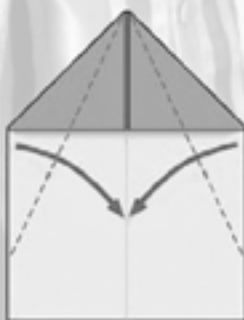
INSTRUCTIONS Basic Dart Paper Airplane



Step 1



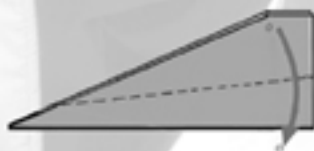
Step 2



Step 3



Step 4



Step 5



Step 6

Step 1.

Use a sheet of 8 1/2 by 11 inch paper. Fold the paper in half lengthwise and run thumbnail along the fold to create it sharply. Now, unfold the paper.

Step 2.

Fold down the top corners as indicated by the arrows.

Step 3.

Fold the two edges toward the center line, as indicated.

Step 4.

Make a valley fold in half. Turn the plane 90 degrees as shown in figure of Step 5.

Step 5.

Create a wing crease that begins at the nose as shown.

Step 6.

Form 3-dimensional shape as shown in figure. The BASIC DART is complete. Bend up the tailing edge of the wings for lift if it has a tendency to nose-dive.

Use markers to color and decorate your paper airplane. Time to test the magic of birds in flight. In groups of 5 have students stand on one side of the room and sail their airplanes through the air. See which ones have the greatest distance and lift.

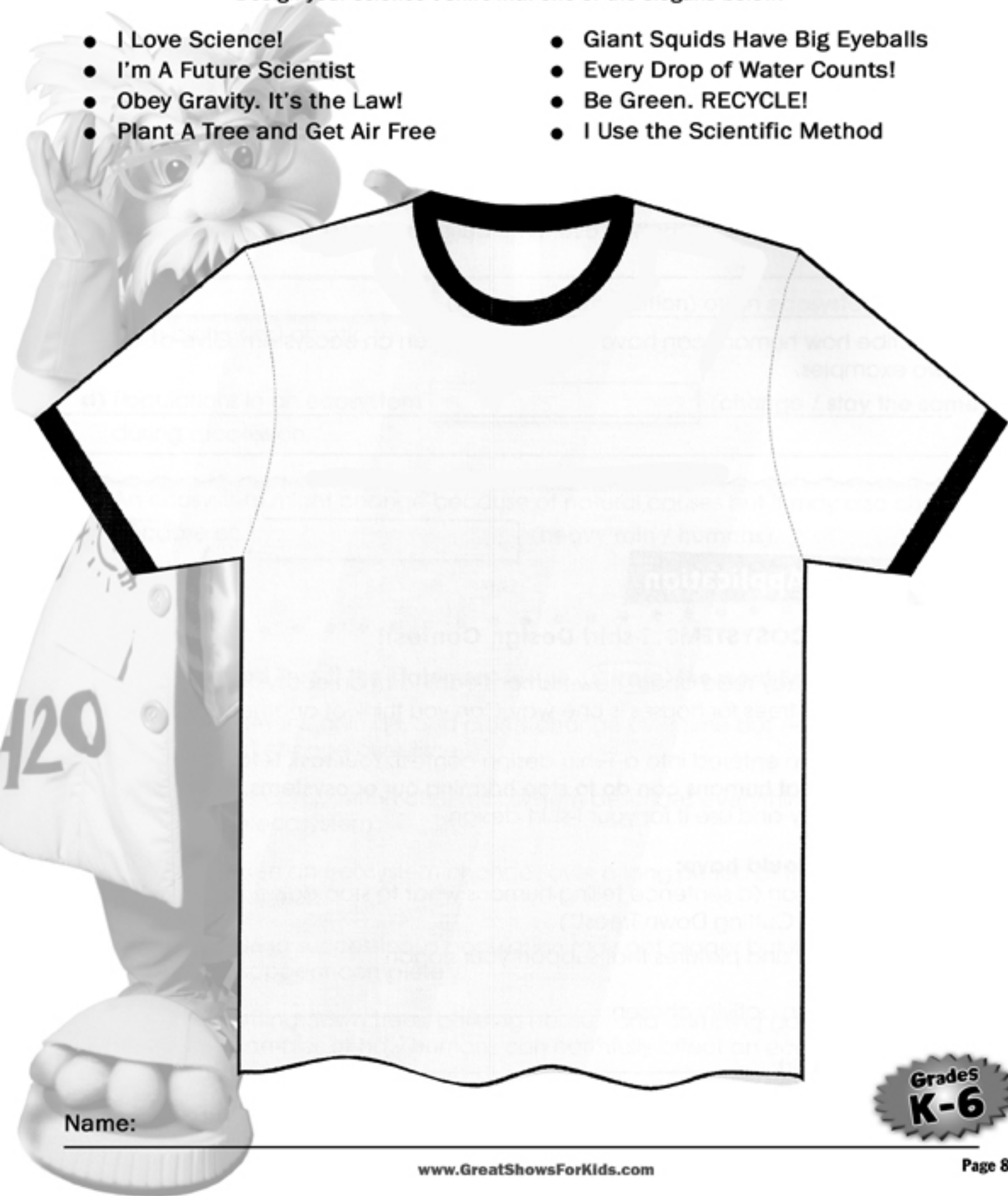
The following website has wonderful downloadable pdf patterns for paperairplanes:
www.amazingpaperairplanes.com/Simple.html

Grades
2-6

SCIENCE ROCKS!

Design your science t-shirt with one of the slogans below:

- I Love Science!
- I'm A Future Scientist
- Obey Gravity. It's the Law!
- Plant A Tree and Get Air Free
- Giant Squids Have Big Eyeballs
- Every Drop of Water Counts!
- Be Green. RECYCLE!
- I Use the Scientific Method



Name: _____

Grades
K-6



SCIENCE WEBSITES:

- **BILL NYE THE SCIENCE GUY**
www.billnye.com
- **BEAKMAN'S WORLD**
www.beakmansworldtv.com
- **HOW STUFF WORKS**
www.howstuffworks.com
- **SEA AND SKY**
www.seasky.org
- **SCIENCE MADE SIMPLE**
www.sciencemadesimple.com
- **PLANET PALS**
www.planetpals.com
- **SCIENCE MONSTER**
www.sciencemonster.com
- **BRAIN POP**
www.brainpop.com
- **COOL SCIENCE FOR CURIOUS KIDS**
www.hhmi.org/coolscience/forkids/
- **FUNOLOGY**
www.funology.com/laboratory
- **AMUSEMENT PARK PHYSICS**
www.learner.org/interactives/parkphysics

AMAZING FACT:

Water is a vital nutrient. People can't survive for more than a few days without it. More than half of the weight of your body is water.