The Mini Page®

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Next Week:
Summer Olympics

Ups and Downs of Yo-yos

photo by Trevor Crawford

Mini Fact:

Your arm acts as a **lever** when you bend at the elbow before throwing the yo-yo. It gives you greater power.

Are you a yo-yo fan? Do you carry a yo-yo in your pocket and practice tricks for your friends?

The Mini Page spoke with a yo-yo expert to find out more about these timeless toys.

Spinning through time

The yo-yo you and your friends play with is a modern version of a toy that goes back to 500 B.C. or before. In ancient Greece, the toys were made of wood, metal or painted **terra cotta**, or clay. They were called **discs**.

During the French Revolution in the 1700s, yo-yos were used as stress relief. It was called the **joujou de Normandie**, which some people think was the origin of the word yo-yo. In England, it was known as a **bandalore**.

In the United States in 1866, two men received a patent for a weighted bandalore.

The yo-yo was also popular in the Philippines, where it was carved from wood. A man named Pedro Flores started a yo-yo company in California in 1928. Flores' yo-yo was different; it was the first one that had the string looped around the axle, rather than tied to it. This allowed the yo-yo to spin at the end of the string, or **sleep**.

An illustration from 1791 shows a young woman playing with a bandalore.

Modern yo-yos

Today, yo-yos can be taken apart to replace the axle. Weights can be added to make a yo-yo spin longer. Some axles have **ball bearings**, which also increase the sleep time.

Yo-yos are still made from wood and plastic, but today many kids and competitors use an aluminum yo-yo with a ball-bearing axle.

The string goes around the bearing; the spacers hold the string in place. Beginners can loop the string around the axle a couple of times to help the yo-yo return to their hand. It won't sleep with a double loop, but it will go up and down easily.

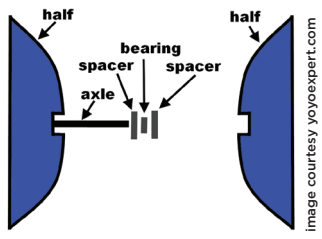


image courtesy yoyoexpert.com

The science of yo-yos

Do you study physics in school? **Physics** is the science of matter and energy and how they interact with each other. Yo-yos have a lot to do with physics!

For example, we know that **friction** is created when two surfaces rub together. When a yo-yo string rubs on an axle, friction is created between the string and the axle. But when the yo-yo is spinning on a bearing, less friction is created. The yo-yo spins longer!

Yo-yos also demonstrate kinetic and potential energy. A yo-yo has **potential**, or stored, energy when it is wound up. It has **kinetic**, or moving, energy when it is released.

photo by Oliver Lopena

In August, yo-yo competitors will meet in Cleveland for the World YoYo Contest. Teenagers and adults from more than 30 countries will compete in six divisions, including tricks with one yo-yo, two yo-yos and offstring yo-yos — those not attached to a string.

Try a yo-yo trick

When you are holding the yo-yo in your palm, the string should come over the top of the yo-yo. Hold your arm bent up, with your hand next to your ear. Bring your elbow down with a snap and let the yo-yo fly out over the ends of your fingers. Turn your hand over, and the yo-yo will return up the string. Or, if the string is looped only once, the yo-yo will sleep.

To **Walk the Dog**, make sure your yo-yo is looped just once, so it will sleep. Throw a fast sleeper, then lower the yo-yo until it gently touches the floor. The yo-yo will start walking forward. Jerk it back up before it stops spinning!

Resources

On the Web:

- yoyoexpert.com/learn
- bit.ly/1V6A1EP
- bit.ly/1ssFwTw

At the library:

- "Awesome Yo-Yo Tricks" by Shar Levine

Try 'n' Find

Words that remind us of yo-yos are hidden in this puzzle. Some words are hidden backward, and some letters are used twice. See if you can find:

ALUMINUM, AXLE, BANDALORE, BEARING, DISC, ELBOW, FRICTION, KINETIC, LEVER, LOOP, PHYSICS, PLASTIC, POTENTIAL, SLEEP, STRING, TOY, TRICK, WEIGHTED, WOOD, YOYO.

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

Cook's Corner

Meat-in-a-Loaf Pan

You'll need:

- 1 pound lean ground beef
- 1 tablespoon Worcestershire sauce
- 1 tablespoon Dijon mustard
- 1/2 onion, chopped fine (1/2 cup), optional
- 1/3 cup Italian bread crumbs
- 1/8 teaspoon pepper
- 1 egg
- 1 (8-ounce) can tomato sauce

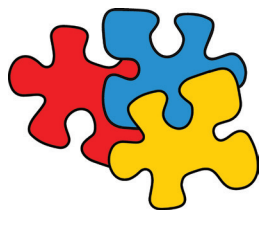
What to do:

1. Mix together ground beef, Worcestershire sauce, mustard, onion, bread crumbs, pepper and egg in a large bowl. Mold mixture into a regular loaf pan.
2. Bake at 350 degrees for 60 minutes until top is browned.
3. Drain away any visible fat.
4. Pour tomato sauce over top and continue cooking for 10 minutes more.
5. Slice and serve. Serves 6.

* You'll need an adult's help with this recipe.

Puzzling

Unscramble the words below that remind us of physics.



itfcrino _____

isnp _____

eyrnge _____

trmate _____

Answers: friction, spin, energy, matter.

Mini Jokes

Frank: How do chubby rabbits get fit?
Fiona: They do hare-robics!

Eco Note

Leopards have disappeared in 75 percent of their historical habitats across Africa, Asia and the Middle East, a new study says. The loss of the big cats is because of expanding agriculture, declining prey and poaching for the illegal trade in the leopards' skins and teeth.

adapted with permission from Earthweek.com

Thank You

The Mini Page thanks Val Oliver, vice president of the Science of Spin in Fort Worth, Texas, for help with this issue.

Teachers:

For standards-based activities to accompany this feature, visit:
bbs.amuniversal.com/teaching_guides.html