

# STATIC ELECTRICITY

Magnetism is a force (a push or pull that can cause attraction). Another force exists called static electricity. This force can pull things together or push things apart. It appears when different objects are rubbed.

A rubbed object is charged. An object which has not been rubbed is uncharged or neutral. A charged object will attract an uncharged object. Two objects that are the same and have been charged in the same way will repel, instead of attract. Two different objects rubbed with different materials may attract.

Rubbing causes little bits, called electrons to get rubbed off. Sometimes you can see, hear or feel these electrons.

Draw what happened when we held the charged balloon next to someone's hair.

Name: \_\_\_\_\_

## Science Experiment 1

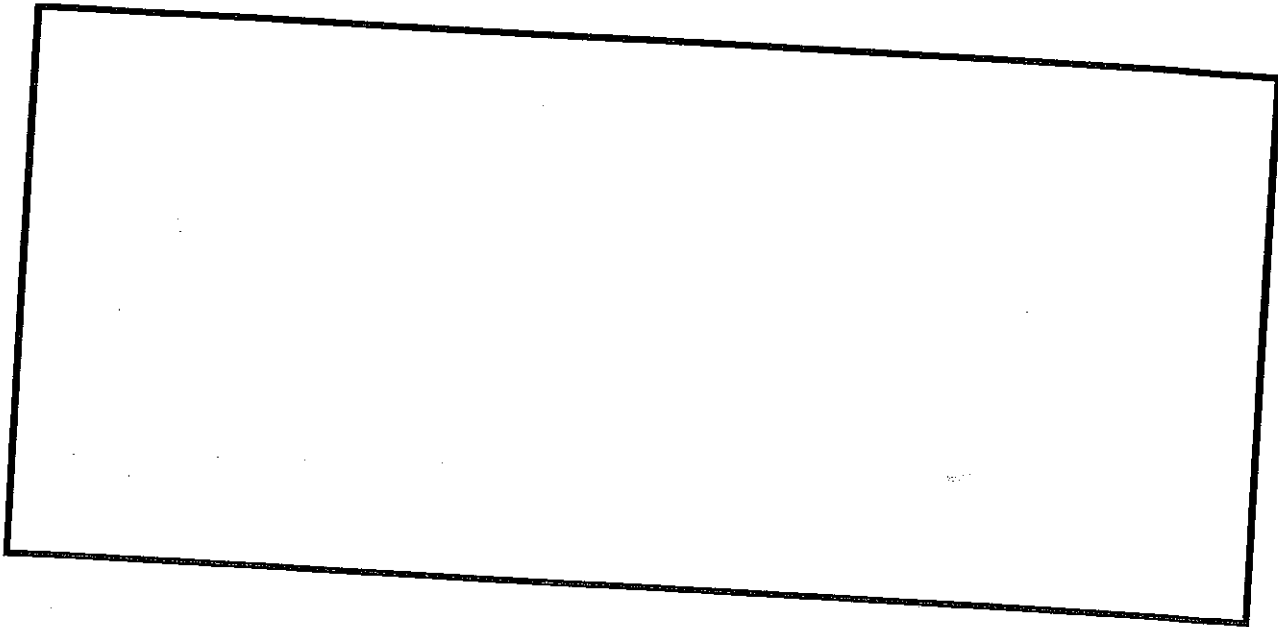
1. **Question:** What happens when you rub a balloon on a piece of wool and then hold the balloon over small pieces of foil?

2. **Hypothesis:** \_\_\_\_\_  
\_\_\_\_\_

3. **Procedure:**

1. Take a balloon and rub it on a piece of wool.
2. Hold the balloon over little pieces of foil.
3. Observe.

4. **Observation:**



\_\_\_\_\_

\_\_\_\_\_

Name: \_\_\_\_\_

## Science Experiment 2

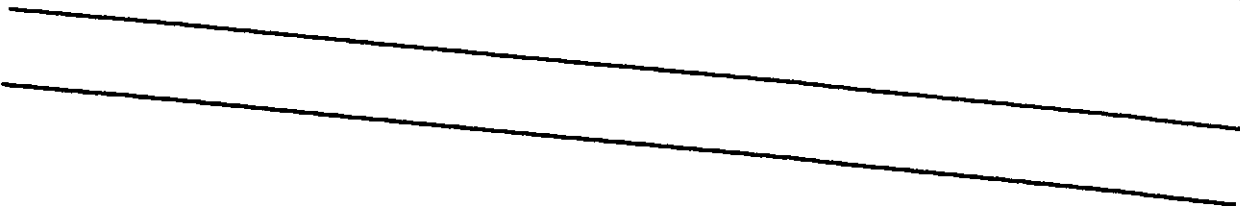
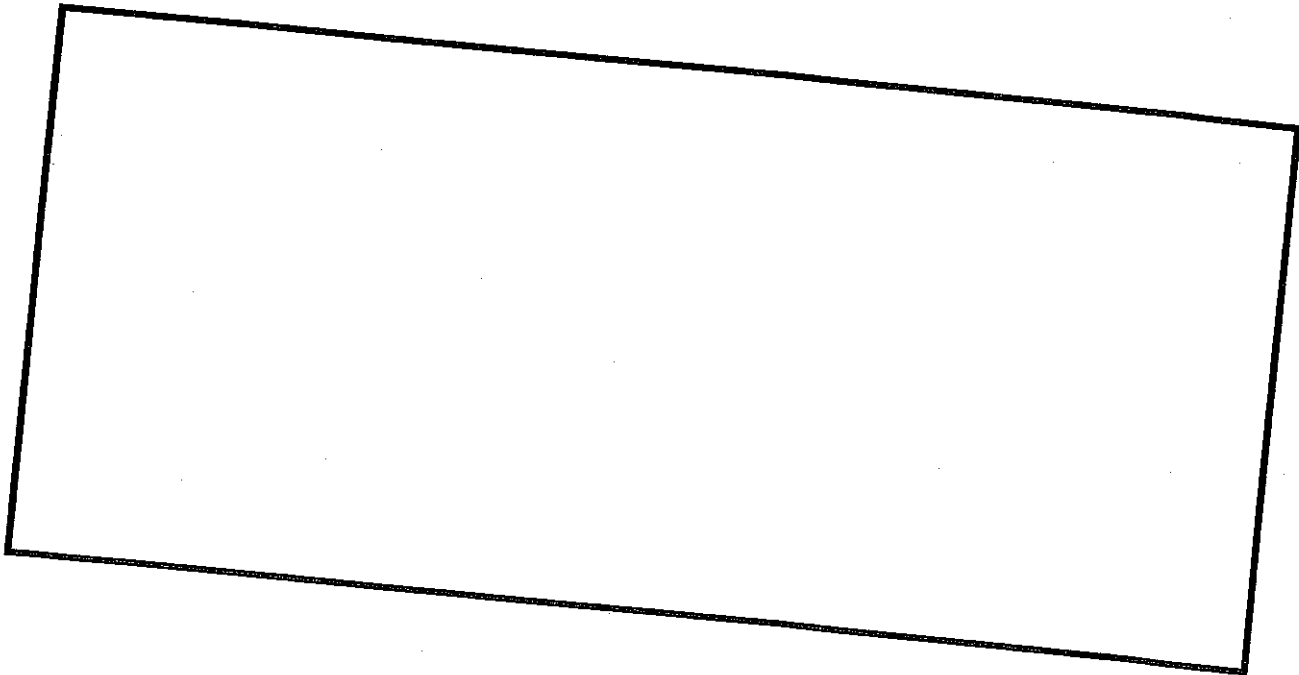
1. **Question:** What happens when you rub a balloon on your hair and then try to stick it to things around the classroom?

2. **Hypothesis:** \_\_\_\_\_  
\_\_\_\_\_

3. **Procedure:**

1. Take a balloon and rub it on your head.
2. Try to stick it to things around the classroom.
3. Observe.

4. **Observation:**



Name: \_\_\_\_\_

### Science Experiment 3

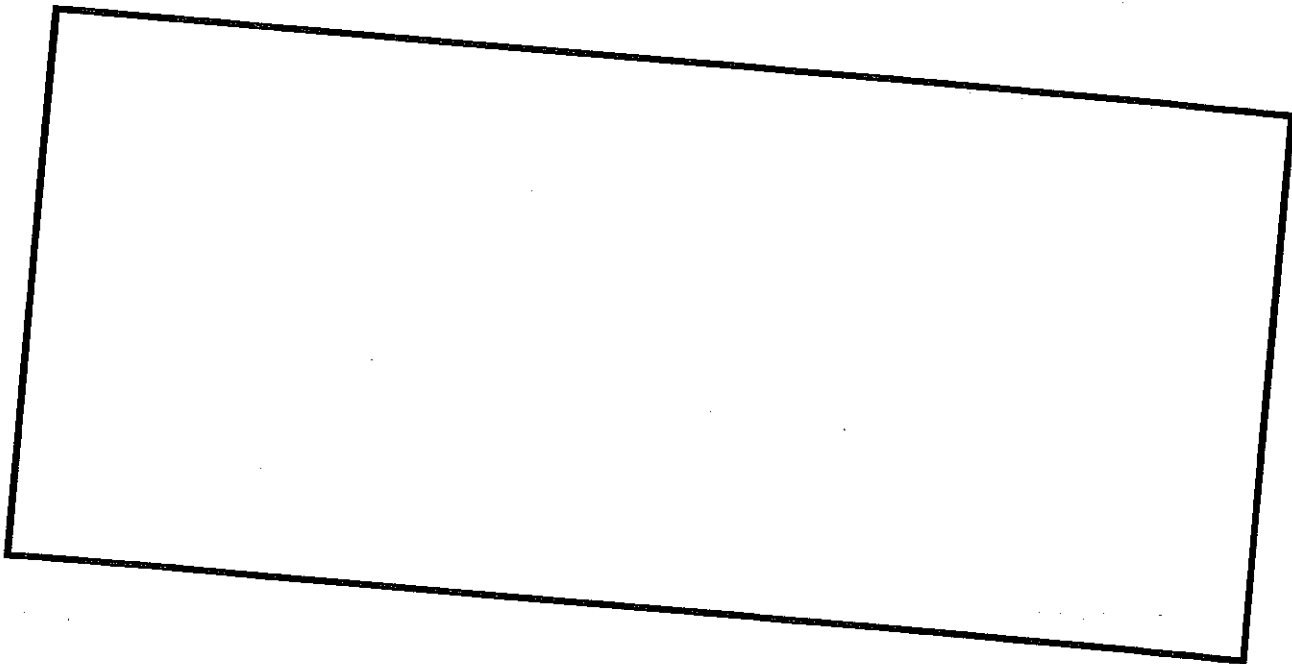
1. **Question:** What happens to your hair when you comb it with a plastic comb?

2. **Hypothesis:** \_\_\_\_\_  
\_\_\_\_\_

3. **Procedure:**

1. Comb your hair with a plastic comb.
2. Observe.

4. **Observation:**



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Name: \_\_\_\_\_

## Science Experiment 4

1. **Question:** What happens when you comb your hair with a plastic comb and put the comb near tissue small pieces of paper?

2. **Hypothesis:** \_\_\_\_\_  
\_\_\_\_\_

3. **Procedure:**

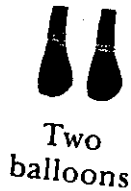
1. Comb your hair with a plastic comb.
2. Put the comb near small pieces of tissue paper.
3. Observe.

4. **Observation:**

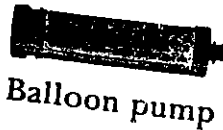
# Crazy balloons

Static electricity does not always attract objects. It can "repel" them, or push them apart. Use two balloons to show how this can happen.

You will need:



Two balloons



Balloon pump

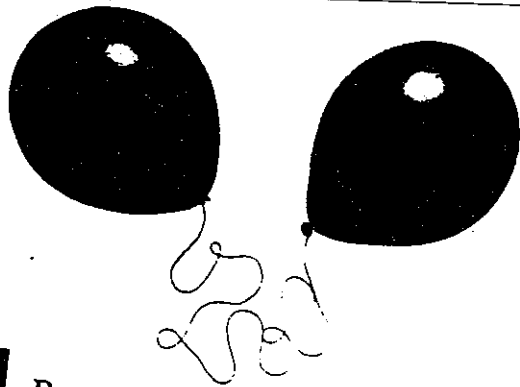


Thread

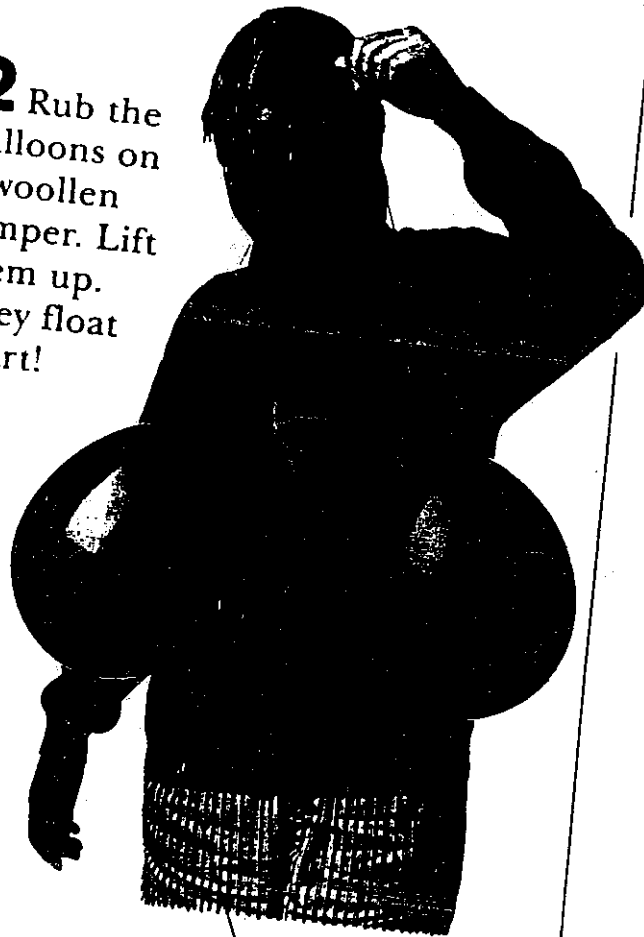


Sheet of stiff paper

**1** Pump up the balloons. Tie knots in their necks and fix the thread to them.

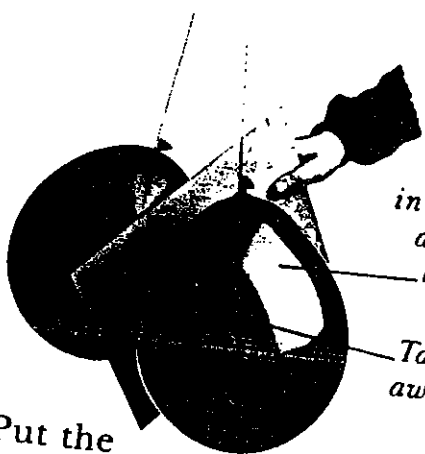


**2** Rub the balloons on a woollen jumper. Lift them up. They float apart!



*The electricity in one balloon repels the electricity in the other.*

**3** Put the paper between the balloons. They both stick to it.



*Electricity in the balloons attracts them to the paper.*

*Take the paper away - and the balloons fly apart again.*

# Bending water

Use a balloon to make electricity, and then see the weird effect it has on water. The kind of electricity that you make is called "static" electricity. It is not the same as the electricity in your home. Static electricity "attracts" things, or draws them towards it.

You will need:

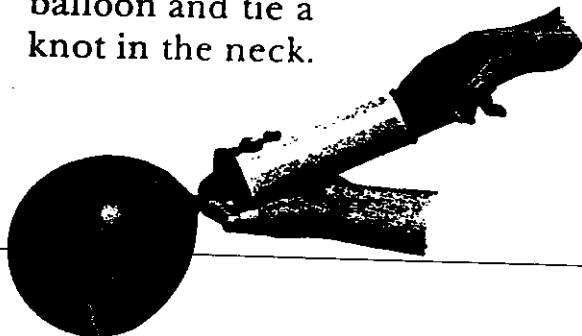


Balloon

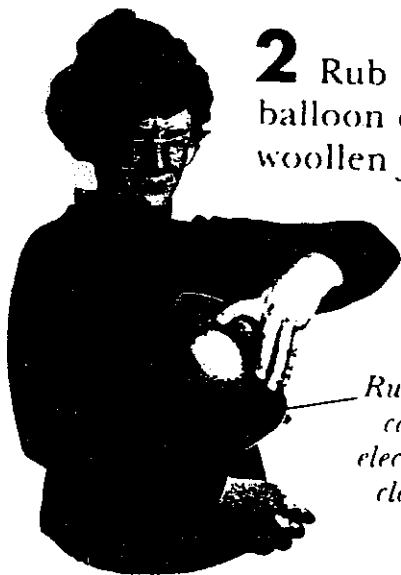


Balloon pump

**1** Pump up the balloon and tie a knot in the neck.

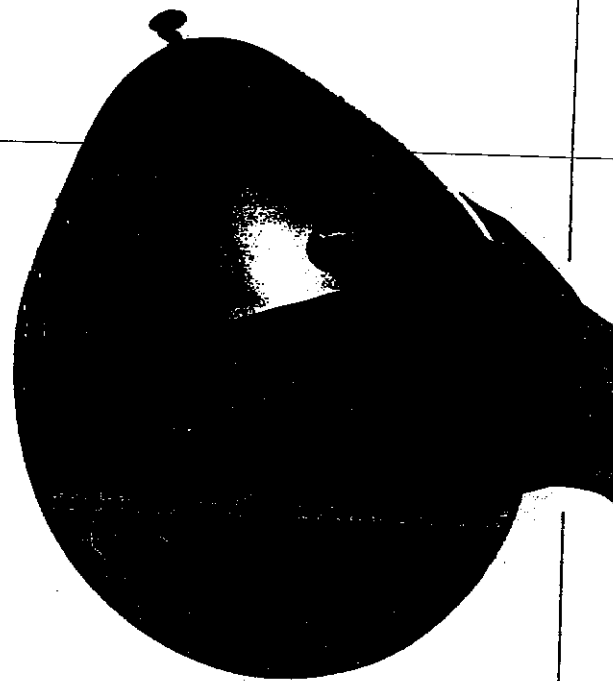


**2** Rub the balloon on a woollen jumper.



*Rubbing an object can give it static electricity. Woollen clothes work best, in dry weather.*

**3** Hold the balloon near a smooth stream of water from a tap. The water bends towards the balloon!

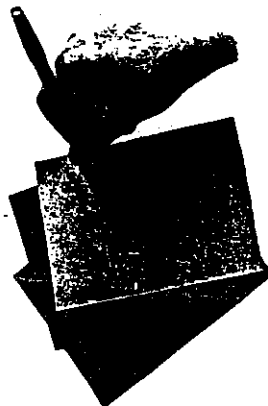
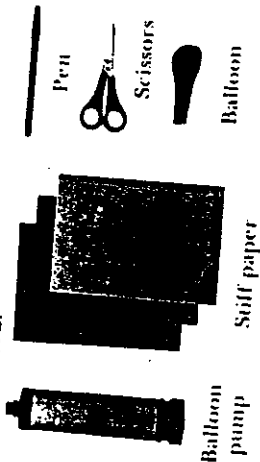


*Static electricity in the balloon attracts the water. If the balloon gets wet, it loses electricity and the bending stops.*

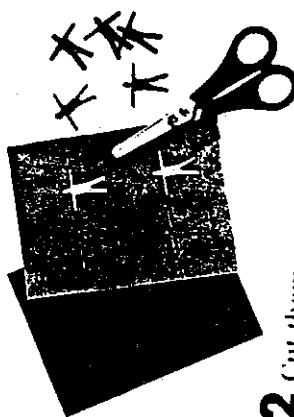
# Jumping jacks

There is an invisible "electric field" around anything with an electric charge. It makes static electricity appear in objects near it. See how this works by making some paper people do crazy jumps.

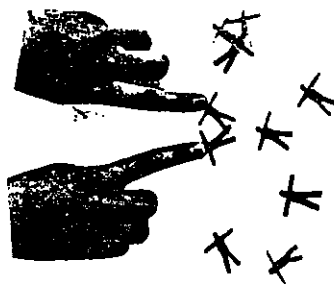
You will need:



1 Draw some small people on the paper.



2 Cut them out.



3 Place them on a table top.

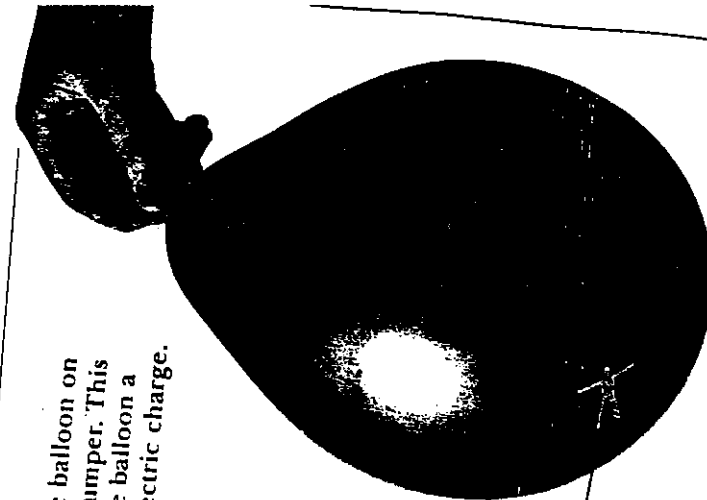


4 Pump up the balloon and tie a knot in the neck.



5 Rub the balloon on a woollen jumper. This will give the balloon a negative electric charge.

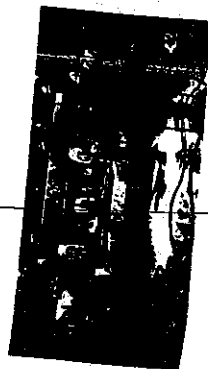
6 Hold the balloon about 10 cm above the people. They will jump up and down several times!



Anything in the balloon's electric field gets a positive charge and is attracted to the balloon.

The balloon attracts the people. When they actually touch it, they get a negative charge and are repelled.

The people jump up and down as they are attracted and repelled, again and again.



Electric pictures

In television cameras and in televisions, tiny electric charges are moved around by electric fields. These charges make pictures show on our screens.



# Dancing Balloons

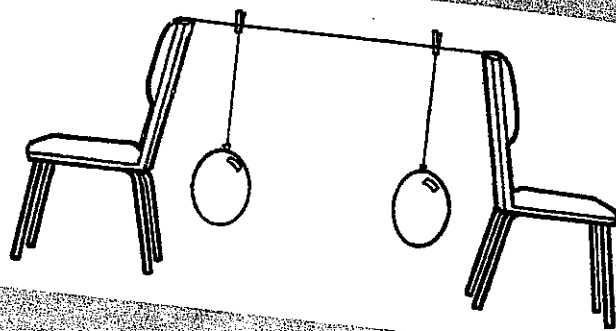


## Materials

- 2 inflated balloons of different colours, each on a string
- wool duster or wool cloth
- 90cm (3') string
- 2 clamp-on clothespins
- 2 chairs

## Setup

Place the chairs close together and stretch the string taut between them. Put the clothespins on the string 60cm (2') apart. Hang the balloons from the clothespins so they are level with each other.



## How to Do the Test

Rub one balloon with the wool duster.

## Watch to See What Happens

1. What happens after only one balloon was rubbed with the duster?
2. What happens if both balloons are rubbed?
3. What happens when you put your hand between the balloons?

**Try something new  
and then make a picture of what you discovered.**

Brain Wave from *Science Is Fun*, published by Teacher Created Materials, Inc.  
and is available from Scholar's Choice.

## What Will Magnets Attract?

Purpose: To see what a magnet will attract.

Materials Used:

AA Antenna

**Method:**

1. Predict which items in your bag a magnet will or will not pick up (attract). Record your prediction on the Prediction Chart in the Observation section.
2. Use the magnet on each item in your bag (one at a time) to see if it is attracted to the magnet. Record what happened on the Observation Chart.

Observations:

### Prediction Chart (I think...)

[illegible]

What happened (I discovered...)

These objects were attracted...	These objects were not attracted...

Conclusions: Why did the magnet pick up some objects and not others?

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What is the rule of magnetic attraction?

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Melissa Master <melissa@djds.ca>

## best friends story (indirect forces)

1 message

Melissa Master <melissa@djds.ca>

To: Melissa Master <melissa@djds.ca>

Sun, Jan 26, 2014 at 4:22 PM

### Best Friends Story (indirect forces)

1. Read story
  2. Discuss the type of force used in the story
- Discuss the following changes to the story:**
3. Direct force is used in taking the slippers
  4. Direct force is used in taking them back.
  5. Different tone of voice (didn't ask for moccasins)
  6. Intimidating body language in asking for them
  7. Very kindly asks for shoes back
  8. Gets bullying friend to ask for them back
  9. Define and discuss **bullying, persuasion**

### Cain and Abel

Discuss the following:

1. What was Cain's and Abel's work? How did they feel about each other's work?
  2. What was the difference in the offerings?
  3. How did Cain feel when he saw Abel's offering?
  4. How was direct force used in the story?
  5. How did Cain feel after?
  6. What was his punishment?  
-->Wandering, no home or family, because earth no longer gives him food  
-->Mark upon head--god prevents others from using direct force against him
  7. At what point did Cain have a decision to make? What could he have done instead?
  8. What do you think the moral is (regarding force?)
  9. Based on God's decision (re: Cain's punishment), what can we learn about using direct force?
- After discussion, write an alternative ending to the story using only INDIRECT force**  
**"At Cain's point of decision, he choose differently. How does the story end? Write and illustrate your response"**

### Adam and Eve

See notes in day plan

### Parsha Shemot

Discuss types of forces:

1. Egyptian beats the Hebrew slave
2. Moses kills the Egyptians
3. Moses shouts (using words) to shame the 2 fighting men
4. Moses shouts "let my people go!"
5. Pharaoh enslaves Jews (direct or indirect force?)
6. Egyptian overseers use direct force and intimidation
7. etc (see which other forces students notice)

**After discussion, draw 1 example of each type of force from the Parsha**

Melissa Master

Grade Three Teacher

Paul Penna Downtown Jewish Day School

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## Best Friends

*We're swallowed up only when we're willing  
for it to happen.*

Nathalie Sarraute

"Please stay," I begged.

Ann was my best friend, the only other girl in the neighborhood, and I didn't want her to go.

She sat on my bed, her blue eyes blank.

"I'm bored," she said, slowly twirling her thick red pigtail around her finger. She had come to play a half hour ago.

"Please don't go," I pleaded. "Your mother said you could stay an hour."

Ann started to get up, then spotted a pair of miniature Indian moccasins on my bedside table. With their bright-colored beads on buttery leather, the moccasins were my most cherished possession.

"I'll stay if you'll give me those," Ann said.

I frowned. I couldn't imagine parting with the moccasins. "But Aunt Reba gave them to me," I protested.

My aunt had been a beautiful, kind woman. I had really

"Okay," she said finally, producing the moccasins from her pocket. "I didn't like them anyway." Relief washed over me like a wave.

After a while, Ann and I stopped playing together. I discovered the neighborhood boys weren't half bad, especially when they asked me to play softball. I even made girlfriends in other neighborhoods.

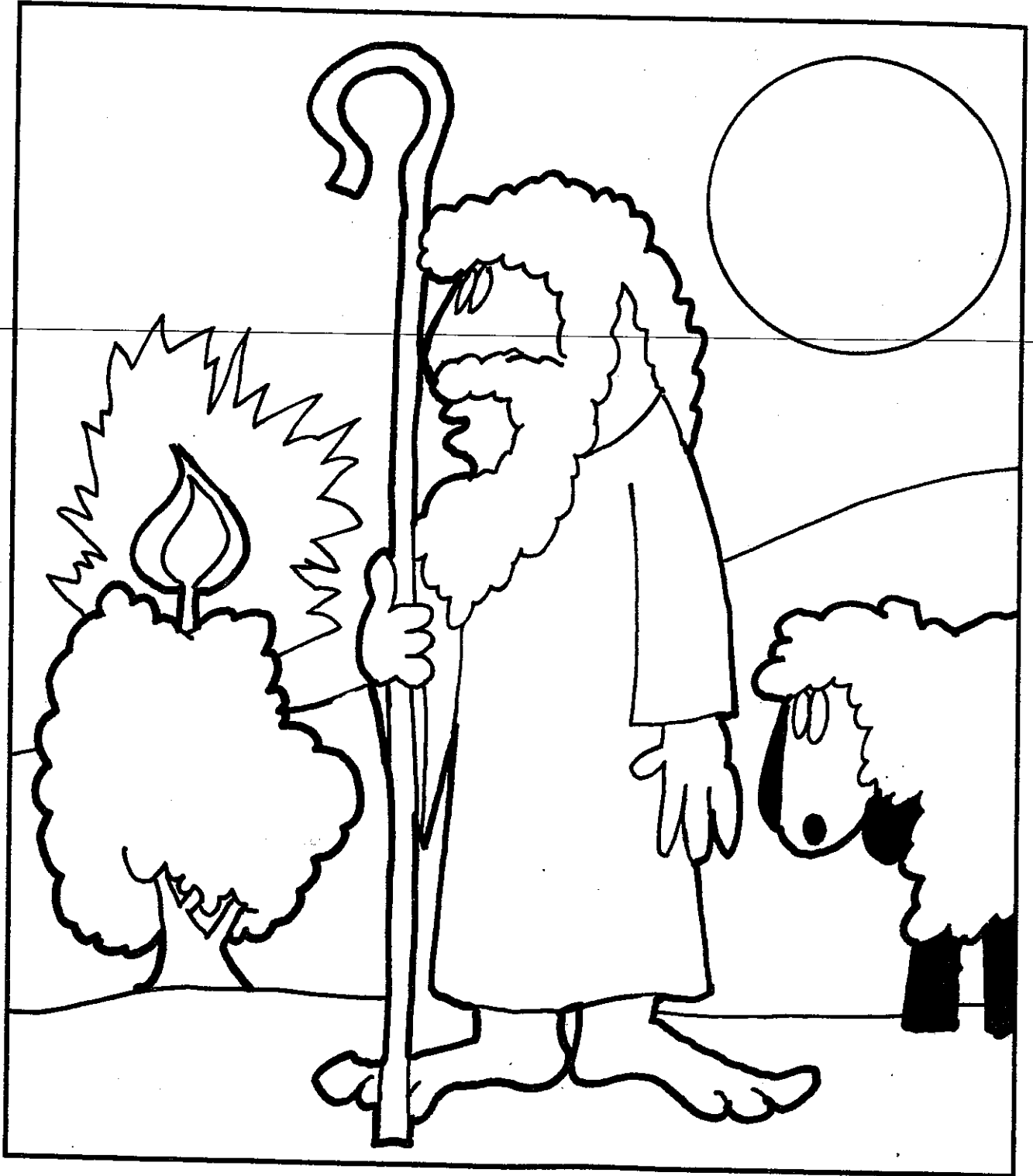
Through the years, I have had other best friends. But I have never again begged for their company. I have come to understand that best friends are people who want to spend time with you, and they ask nothing in return.

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*Mary Beth Olson*

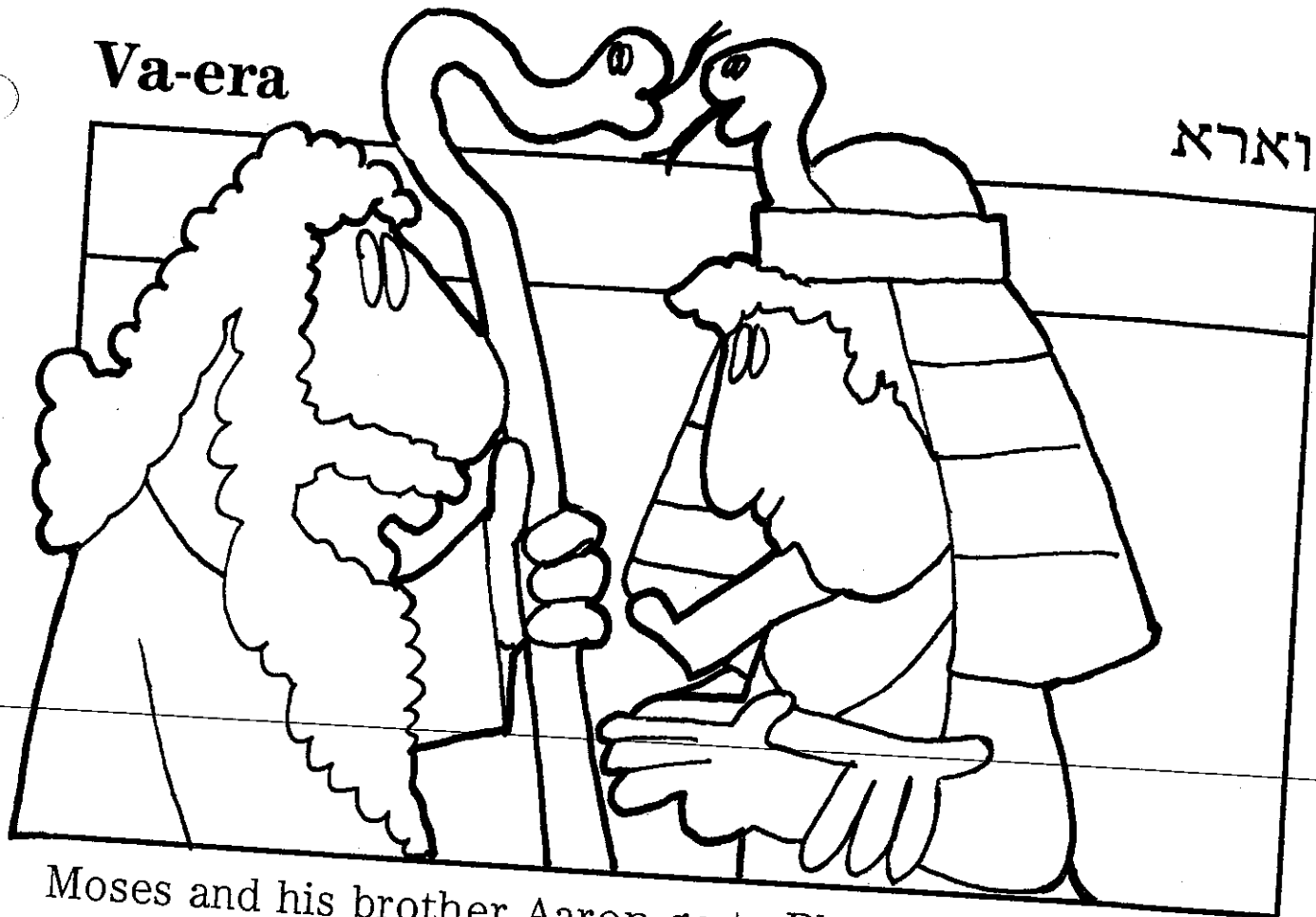
## Shemot

Moses becomes a shepherd. One day he sees a burning bush which doesn't burn up. God speaks to him from that bush. God tells Moses to go back to Egypt and lead Israel's children to freedom in the Promised Land.



Va-era

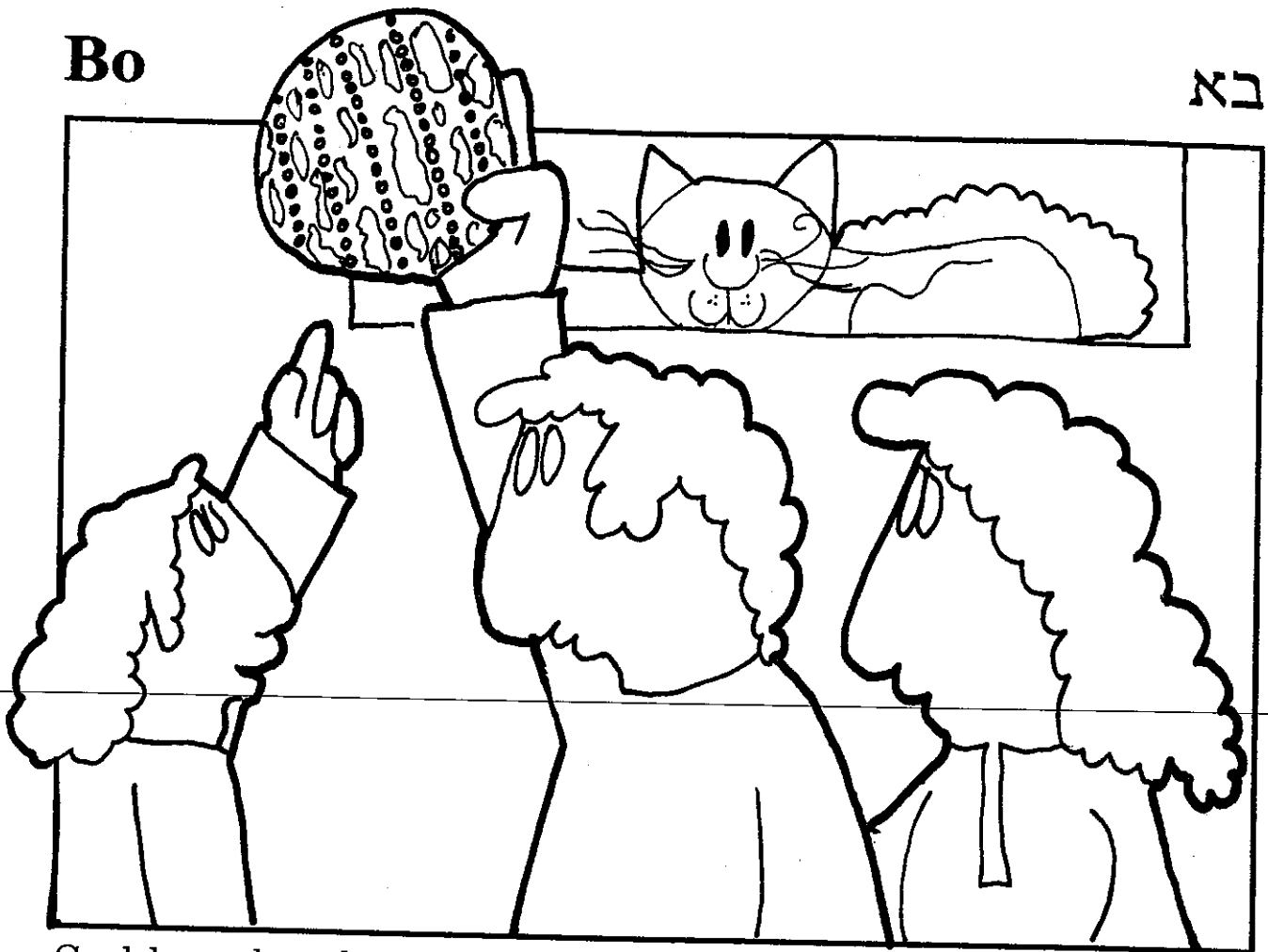
וַאֲרָא



Moses and his brother Aaron go to Pharaoh. They tell him, "God said, 'Let My People Go.'" Aaron throws his staff down on the ground. It turns into a snake. The men who do magic for Pharaoh throw their staffs onto the ground, too. Their staffs also turn into snakes. Aaron's staff eats all of their staffs.

When Pharaoh says "No," God turns the Nile river into blood. This is the first plague. Next, God fills Egypt with frogs. Frogs are everywhere. This is the second plague. Then God puts lice all over Egypt. Every living thing in Egypt has lice. Lice are the third plague. Next God fills all of Egypt with bugs. Insects are the fourth plague. During the fifth plague all the cattle get sick. For the sixth plague God gives everyone in Egypt itchy skin. The seventh plague is big hail which falls like rain. Still, Pharaoh won't let the Jewish people go.





God has already sent seven plagues to Egypt. Still, Pharaoh won't let the Jewish people go. Next God sends locust bugs which eat up all the food growing in Egypt. Locusts are the eighth plague. Still, Pharaoh doesn't change his mind. God makes all of Egypt dark as midnight. Darkness is the ninth plague. Still the Jewish people are slaves. The tenth plague is the last plague. On this night every firstborn Egyptian child dies, but God passes over all the Jewish homes. All of the Jewish children are safe.

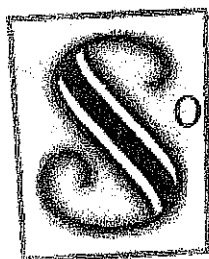
On the last night in Egypt, God has Moses and Aaron tell every Jewish family to celebrate Passover. Each family celebrates with a Passover lamb, some bitter herbs, and matzah. In the morning, Pharaoh finally changes his mind. The Jewish people leave Egypt.

# CAN & ABEL

*the story of*

## TWO BROTHERS

(Genesis 4.1-16)



o God sent Adam and Eve out of the garden.

Now they were going to have to work hard for their food and their clothes. And because of their sin, so would every one who ever lives.

That made Cain mad.

God loved Cain, and he said to him, "Why are you scowling? If you always do what is right, you will be happy. But be careful. Bad thoughts will ruin your life. Learn to control them."

But Cain didn't listen to God.

Instead he blamed his brother.

And even though God loved both brothers as much as anyone could ever be loved, Cain thought God loved Abel more than him. So from that day on, Cain began to think mean things about his younger brother.

He kept thinking them and thinking them. And the more he thought them, the harder it was to stop. And the more he thought them, the meaner his thoughts became. Until one day he planned a terrible thing.

He said to his brother on a bright, sunny morning, "Abel, come with me out into the fields."

"Sure," Abel said, because he loved his big brother, and trusted him. And so he walked with his brother out into the fields. And when Cain got Abel out where nobody could see or hear them, he took a rock and he killed his brother Abel.

Later that day God found Cain working in the hot sun. God said to him, "Where is your brother Abel?"

"How should I know?" Cain said. "Am I supposed to take care of my brother?"

But God knew the terrible thing Cain had done.

God said to him, "I see your brother's blood on the ground! Because you have spilled your brother's blood into the ground, the ground won't grow your crops for you anymore. From now on you will have to wander in far away places to find your food."

Name: \_\_\_\_\_

# **New Ending for Cain & Abel**

## **(using Indirect Force)**

