

Material Preparation

MATERIALS

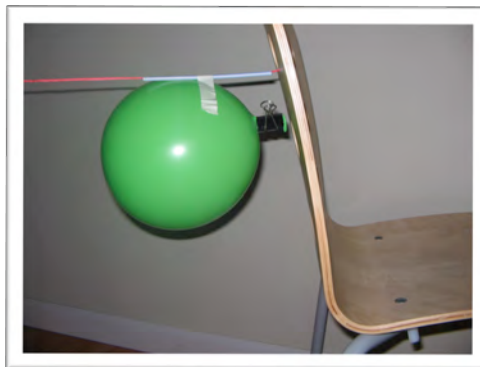
- two chairs
- empty cardboard box or storage container
- scissors
- tabletop space greater than 3' in length
- binder clip
- masking tape
- 10' length of knitting yarn
- drinking straw
- balloon

For each child and the teacher:

- six dominoes
- one thin paperback book (assorted sizes)
- Ask Me About Air sticker

SET UP THE LESSON AREA

- Place the dominoes in a large box or container.
- Create a *Balloon Rocket* demonstration on a large floor space:
 - Thread the string through the straw.
 - Tie opposite ends of the string to chairs, spaced about eight feet (8') apart.
 - Inflate the balloon. Twist the neck of the balloon then use a binder clip to hold the balloon closed.
 - Attach the balloon to the straw with two pieces of tape.
 - Test the balloon rocket demonstration to be sure it moves easily on the string.



SET UP THE LESSON AREA

Place the container of dominoes and the stack of assorted books to the side.



OBJECTIVE

Children will understand that air in motion can move objects.

EXCITE

1. Gather the children in the ECHOS lesson area to watch the *Balloon Rocket* demonstration. Hold the balloon at one end of the string. **Watch this balloon carefully. What do you think will happen if I remove the binder clip?** Listen to the children's responses.
2. Remove the binder clip and watch the balloon travel toward the opposite end of the string.



INTRODUCE

1. **Does anybody know what was inside the balloon?** Listen to the children's responses. **There was air in the balloon. As the air came out of the balloon, it moved the balloon. As soon as the air was gone, the balloon stopped.**
2. Seat the children at a table. **Let's see what other things air can move. When air moves, it's called *wind*.** Hold up a book and wave it slowly to send a gentle breeze toward the children. **Can you feel the wind? Is the wind moving anything?** Prompt children to notice the wind moving their hair or clothing. **How does it feel when I wave the book *slowly*?** Listen to the children's responses.
3. Set up three dominoes on the table near you, in a row from left to right. **Now, I'm going to move these dominos without touching them. Can you guess how? Yes, I'll use air to move them. I'll try to move these dominoes that are *near* me. What do you think will happen if I wave this book slowly to move the air?** Accept responses. **Let's try it.** Wave the book slowly until the dominoes fall down. **What happened?** Listen to the children's responses.



4. Set up three dominoes on the table, about three feet away from you, in a row from left to right. **What do you think will happen if the dominoes are *far* away from me? I'll move the book slowly again. Let's see what happens.** Wave the book slowly at the end of the table from where you are seated; few or none of the dominoes should fall down. **What can I do to make the dominoes fall down?** Listen to the children's responses. **Let's see what happens if I move the book *faster*.** Wave the book faster until most of the dominoes fall down.



5. Set up three dominoes about three feet away from you, then set up three more in front of you. **Let's explore more. Some of the dominoes are near me, and some of the dominoes are far away from me. What do you think will happen when I wave the book now?** Listen to the children's responses. **Let's try it.** Wave the book slowly back and forth until the near-by dominoes fall down. **Which dominoes fell down?** Prompt children to notice that the dominoes that were near you fell down first. Wave the book back and forth quickly until all the dominoes, from each row, fall down.



EXPLORE

1. **Now it's your turn. I will give you each six dominoes.** Distribute six dominoes to each child.
2. **Watch me.** Model for the children by setting up three dominoes in a row near you on the table. **Can you set up three dominoes in a row near you just like I did?** Provide time for children to set up the dominoes. Assist as needed.
3. **Let's try to make them fall down using air.** Hand a book to each child. **You can use these books to make air move. Remember that we need to handle books gently.**



4. **Move your books back and forth slowly to make a gentle wind. What happened?** Listen to the children's responses.
5. **Now, we are going to use the books again to try to move dominoes that are far away.** Model for the children by setting up three dominoes in a row on the table, about three feet away from you. Assist as needed. **How many of your dominoes do you predict will fall?** Listen to the children's responses. **Move your book faster, back and forth, to make a strong wind.**
6. If time permits, encourage the children to try different configurations of the dominoes, use different book sizes, and alternate between slow and fast movements.
7. Collect the books and dominoes. **When the dominoes were near you, a gentle wind was enough to move the dominoes and knock them down. When the dominoes were far from you, you needed a strong wind to knock them down. You all did a great job using air to move things today!**




INTERACT

Interact to accommodate children's individual needs and strengths. Use these suggested strategies as needed:

- Books might get damaged during activity; provide only books with some wear and tear. Show children how to handle books carefully and keep them closed during the investigation.
- Provide enough space for children to avoid waving books too closely to one another.
- Have children compare the difference between using smaller books and larger books.

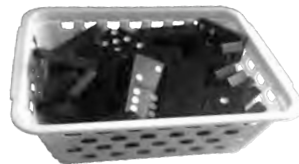
OUTCOMES

1. Regroup the children in the ECHOS lesson area. **What did we discover today?**
Listen to the children's responses. If needed, use suggested prompts to elicit key concepts and vocabulary. Encourage responses from everyone.
 - **What happened to the balloon when I let go of it?**
 - **What was inside the balloon?**
 - **How did you make air move?**
 - **How did you make the dominoes fall down?**
2. Give each child an *Ask Me About Air* sticker. 

Remind the children to tell their family something they have learned about air.
3. After you have completed *Lesson #3: Air Moves Things* with all the children in your classroom, add the ECHOS materials suggested below to your science area to encourage exploration.

VOCABULARY

- far/near
- fast/faster
- slow/slowly
- wind



dominoes



container of paperback books