

Training 3. Storybooks and Math

Make Connections: You and Me and Math

Background for trainers

GOALS

- Learn ways to highlight math in storybooks
- Recognize that math includes positions like up, down, and above
- Practice “math talk” to use when reading with children

Materials

- Pencils or pens, 1 per participant
- HANDOUT 3 (3A-3B), 1 per participant, English or Spanish
- Storybooks with pictures that include things that go up and down (e.g., balloons, people going up and down ladders, airplanes), 1 per pair
Book suggestions: *Book Fiesta* (Pat Mora); *I’ll Catch the Moon* (Nina Crews); *Jack and the Beanstalk*. If possible, use books in the languages that children speak at home.

Before beginning

- Copy handouts in color
- Borrow storybooks from a resource center or library.
- Set up projector for video (optional)

A. WELCOME AND INTRODUCTION (2 MINUTES)

1. Explain the session plan



Welcome! In this training, you will:

- ▶ learn ways to highlight math in storybooks,
- ▶ learn how to help children with the math of positions like up, down, and above,
- ▶ practice “math talk” to use when reading with children.

Position words like up, down, sideways, and upside down help children with the math of “spatial skills.” When children are a little older, they use spatial skills to understand maps and to follow directions, like turn left, and look up. You can help them by using position words when you talk with them.

B. WATCH AND DISCUSS VIDEO (10 MINUTES)

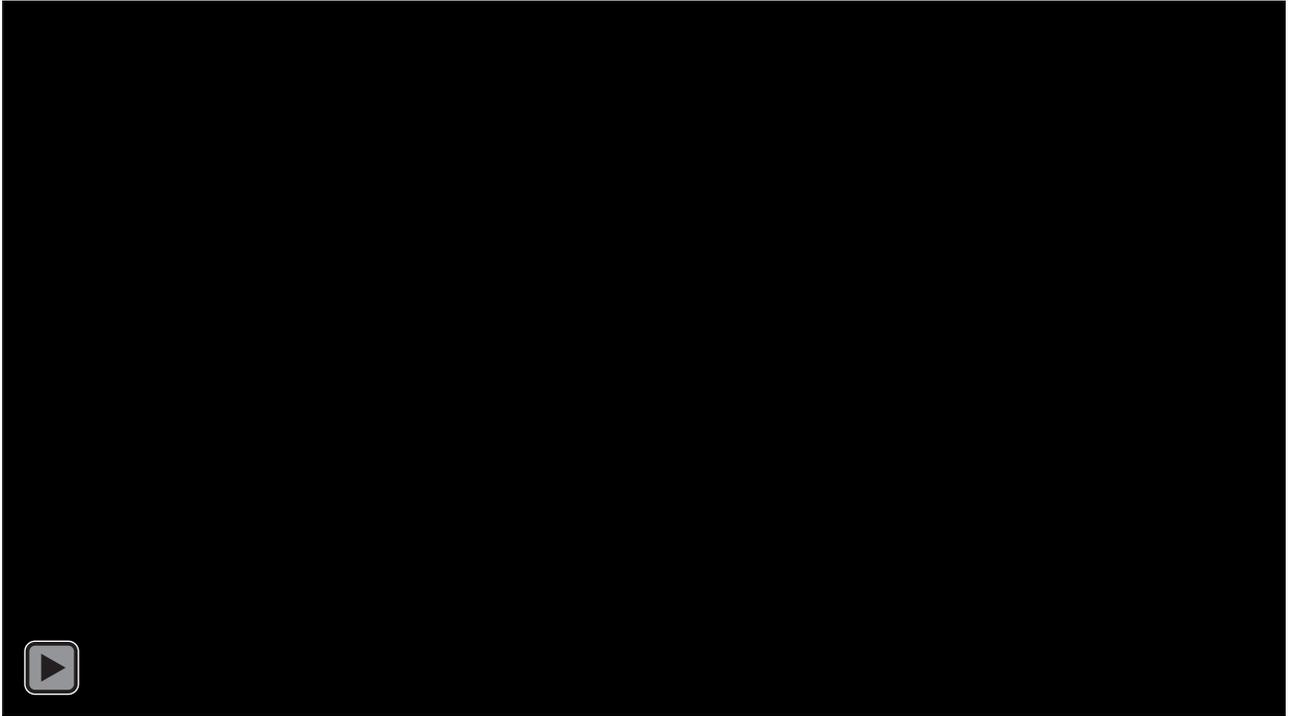
1. Introduce UP AND DOWN video

- ▶ This video shows a mother and child talking about the book, *Growing Vegetable Soup* (Lois Ehlert). This is based on a MAKE CONNECTIONS STORYTIME CONNECTION sheet (UP AND DOWN).
- ▶ When you watch, think about:



How does the mother combine math and reading with her child?

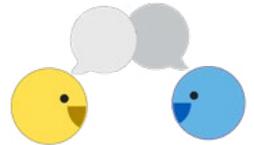
2. Watch UP AND DOWN video



3. Have participants discuss in pairs for 1-2 minutes



How does the mother combine math and reading with her child?



4. Review key points



The mother combines math and reading:

- ▶ She introduces size words and position words (tiny, over, up, down) when showing her child the pictures in the book.
- ▶ The mother and child “act out” up and down.
- ▶ She asks the child to predict by saying “Let’s see what will happen ...”.

C. ACTIVITY: UP AND DOWN (10-15 MINUTES)

1. Distribute and introduce HANDOUT 3

- ▶ HANDOUT 3A gives ideas for math talk to use when reading books about things that go up or down, like plants.

Read the math talk in the yellow box on HANDOUT 3A out loud or ask for volunteers to do so.

- ▶ You will be coming up with your own math talk for a storybook that involves things going up and down.

TELL STAFF

If caregivers can't read, they can use pictures in books as a basis for discussing sizes and positions. They can use math talk in any language..

- ▶ Start your question with “How do you know,” “Why,” or “What do you think.” Questions like, “What do you think happens to the balloon when the boy lets go of it?” help children make sense of positions like up, down, high, and low. Avoid questions like “Does it go up or down?” Children might simply answer up or down without understanding.
- ▶ Math talk comments are a way for you to explain your math thinking to a child and to use math vocabulary so the child will learn from you.

Read HANDOUT 3B out loud, including the math talk checklists.

2. Participants fill out HANDOUT 3B in pairs

Have each pair choose a book. As participants work, circulate to help them see if their ideas fit the math talk checklist. Help them revise if needed.

D. Wrap Up (2-5 minutes)

1. Review key points of the session



To review, here are the main points of the session:

- ▶ You can use storybooks to help children learn math.
- ▶ Math for young children includes positions in space (up, down, above, below, etc.).
- ▶ Caregivers can read with children in any language. Those who cannot read can talk through books with children.

**Storytime Connections
Read Math Together**

Math topic:
Geometry
(spatial relationships)

Math vocabulary:
Above, below,
down, up

UP AND DOWN

Read a book about balloons, plants, or other things that go up (or down), like **Growing Vegetable Soup** (Lois Ehlert).

As you read together, talk about:



Tell me what happened in the story so far.

Lift your hands **above** you to show “**up.**”

Use your hands to show “**down.**”

What do you see when you are high **up** looking **down**?

Math Talk: Up and Down

Handout 3B

Fill in two ideas for math talk to use when reading a book about things that go up and down. Check that your ideas are math talk. If they are not, revise them.

Write down a math talk comment you could make when you read the book:

MAKE SURE IT IS MATH TALK:

Does your comment use math vocabulary on the activity sheet, like up, down, above, and below?

If not, revise your comment to include math words.

Write down a math talk question you could ask when you read the book:

MAKE SURE IT IS MATH TALK:

Does your question ask the child to explain his or her thinking?

If not, revise your question so that the answer involves explaining thinking.

Conexiones con los cuentos
Matemáticas en los libros

Tema de matemáticas:
Geometría (posiciones)

Vocabulario de matemáticas:
Encima, debajo, abajo, arriba

ARRIBA Y ABAJO

Lee un libro sobre globos, plantas u otras cosas que suban (o bajen), por ejemplo **A sembrar sopa de verduras** (Lois Ehlert).

Mientras leen juntos, hablen sobre:



Cuéntame qué pasó en la historia hasta ahora.

Eleva tus manos por **encima** de ti para señalar “**arriba**”.

Usa tus manos para señalar “**abajo**”.

¿Qué ves cuando estás **arriba** y miras para **abajo**?

Plática matemática: Arriba y abajo

Folleto 3B

Completa dos ideas para la Plática matemática para usar cuando lees un libro sobre cosas que suben y bajen. Verifique que sus ideas sean de Plática matemática. Si no lo son, revíselos.

Escriba un comentario de Plática matemática que pueda hacer mientras que lea el libro:

ASEGÚRESE DE QUE SEA PLÁTICA MATEMÁTICA:

¿Su comentario usa vocabulario en la hoja de actividad, como arriba, abajo, encima y debajo?

Si no es así, revise su comentario para incluir palabras de matemáticas.

Escriba una pregunta de Plática matemática que puedas hacer al leer el libro:

¿ _____ ?

ASEGÚRESE DE QUE SEA PLÁTICA MATEMÁTICA:

¿Su pregunta pide que su niño/a que explique su pensamiento?

Si no es así, revise su pregunta para que la respuesta incluya la explicación de su pensamiento.