Welcome to

STEM Storytelling:
Using Picture Books to Integrate Mathematics

Lindsey Herlehy and Karen Togliatti
Who Lives Here?

*Listen to Our World*

by Bill Martin, Jr. and Michael Sampson

Why might the parrots be squawking?

What does the jungle look like?

Which kangaroo is the momma kangaroo? How do you know?

Why do you think a whale comes to the surface of the ocean?

Questions begin on page 6.
Inferential Reasoning

- Relying explicitly on data
- Attend to uncertainty
- Making and evaluating mathematical claims

How many total paws do the lion cubs have in this picture?

Do you think the adult lion has the same number of toes on each paw as the lion cubs? Convince me.
Kindergarten Activity

Students are asked to define a habitat following the completion of the read-aloud.

Students are provided a Habitat Placemat and are asked to think about each of the presented habitats.

Students will take turns sorting the animal figures by habitat onto the placemat.
Sample Student Work
Individual Accountability

Each student will receive one Animal Card and will place it in the class pocket chart according to the habitat category of the animal.
Counting and Cardinality

- Classify objects and count the number of objects in each category
- Count to tell the number of objects
- Count to answer “How Many?” questions
- Compare numbers
Assessment and Debrief

• Can you think of any other animals that may live in the habitats we talked about today?

• In which habitat do you think MOST of the animals in the world live? Why might you think that?

• Can you give an example of an animal that can live in one habitat but not another habitat? Explain.

• What new questions do you have? What are you wondering about now?
First Grade Activity
Begins on page 15

Students use various counting strategies to select a Number Card that represents the number of animal figures in each habitat on their placemat.

Students make mathematical observations:
✓ What do you notice?
✓ How do you know this?
✓ How can you convince me?

Students complete put together, take apart and compare problems using their animal figures, Number Cards, and student work page.
Students sort each animal figure onto the bar graph template according to their habitat.

Students draw a representation of their physical graph model.

Questioning focuses on:
- Reading within the data
- Reading between the data
- Reading beyond the data
Sorting Extension & Mapping Activity
Dare to Tinker

The Most Magnificent Thing by Ashley Spires

Questions begin on page 48.
Design Challenge

Design, build, and test a MAGNIFICENT vehicle!

- A plastic pet will ride on your vehicle.
- Your vehicle must roll down a ramp.
- Your pet cannot be taped onto the vehicle.
- Your vehicle should travel at least twelve inches past the bottom of the ramp.
- You do not want to spend a lot of money on your design.
Wheel and Axle

NGSS ETS1.C: Because there is always more than one possible solution to a problem, it is useful to compare and test designs.
Materials: Store Setup

NGSS PS1.A  A great variety of objects can be built up from a small set of pieces.
You have ten minutes!!
Mathematics
Kindergarten and First Grade

Students will use Brickyard™ Building Blocks or Lego® pieces to build a magnificent vehicle to transport a pet.

Building materials are investigated to determine their potential usage and object movement (push/pull) is highlighted.

Paper strips are used to model distance each vehicle travels. Kindergarten focuses on comparison while first-graders are introduced to estimation and use a pet dog to “measure” the distance traveled.
THANK YOU!

- Lindsey Herlehy
  lherlehy@imsa.edu

- Karen Togliatti
  ktogliatti@imsa.edu

- Download lessons from:
  goo.gl/21awMB
  goo.gl/5yX5Yd