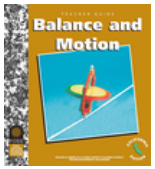

Second Grade: FOSS
Physical Science - Balance and Motion

Investigation Title and Synopsis	Concepts	Assessments and TE Page Numbers
1. The First Straw Students learn the need for standard units of linear measurement. They measure objects with nonstandard units (straws), and then use a meter tape to measure objects in meters and centimeters. Later they apply linear metric measures to study motion.	• The meter is the standard metric unit of linear measurement; 100 centimeters makes a meter • Length is how far it is from one point to another	• Part 1: Anecdotal Notes (page 265) • Part 2: Teacher Observation: Assess students' techniques using meter tapes/Assessment Checklist (pages 266-269)/Notebook Sheet 1: *How Long Is It?* (page 213) • Part 3: Teacher Observation: Makes accurate measurements of length/Assessment Checklist (pages 266-269) and Notebook Sheet 2: *Making Comparisons* (page 214)
2. Balance Students explore numerous ways to balance two-dimensional shapes made out of tagboard by positioning counterweights in strategic locations. They make mobiles to apply their understanding of a stable position.	• Objects can be balanced in many ways • A stable position is one that is steady; the object is not falling over • Counterweights positioned in certain ways can help balance an object • A mobile is a system of balanced beams and objects	• Part 1: Anecdotal Notes (page 265) • Part 2: Notebook Sheet 3: *Stable Positions* (page 215) • Part 3: Teacher Observation: Describes position of counterweights; they must be below the balance point to produce a stable position/ Assessment Checklist (pages 266-269) • Part 4: Anecdotal Notes (page 265)

Investigation Title and Synopsis	Concepts	Assessments and TE Page Numbers
3. Spinners Students explore the variables that influence the spinning of a top, a zoomer, and twirlers. They explore the forces that make tops and zoomers move. They observe the force of gravity causing objects to fall.	• A force is a push or pull; gravity is a pulling force • Objects and systems that turn on a central axis exhibit rotational motion • The amount and position of mass affect how an object rotates • The motion of an object can be changed by pushing or pulling	• Part 1: Teacher Observation: Understand that speed and mass can affect how an object spins/ Assessment Checklist (pages 266-269) • Part 2: Anecdotal Notes (page 265) • Part 3: Teacher Observation: Compares spinners and knows that a force is needed to start the motion/Assessment Checklist (pages 266-269)
4. Rollers Students investigate rolling objects - wheels, cups, spheres - and describe change in position over time. They gain more experience with gravity causing objects to fall to the ground. Students use flexible marble runways to observe an object's change of position.	• Wheels and spheres roll down a slope because of gravity • Wheel-and-axle systems with wheels of different sizes roll toward the smaller wheel • The amount and location of mass can change the way a system rolls	• Part 1: Anecdotal Notes (page 265) • Part 2: Teacher Observation: Predicts and describes cups rolling down slopes/Assessment Checklist (pages 266-269) • Part 3: Notebook Sheet 8: *Marble Runways* (page 220)
5. Back and Forth Students explore the production of sound with a door fiddle, tuning forks, xylophones, kalimbas, spoons, and gongs. Students look for vibrations at the sound source and explore how to change pitch and volume of sound.	• Sound is caused by vibrations • Pitch is how high or low a sound is; differences in pitch are caused by differences in the rate at which objects vibrate • Volume is how loud or soft a sound is	• Part 1: Teacher Observation:s: Identifies a vibrating object as a sound source/Assessment Checklist (pages 266-269) • Part 2: Notebook Sheet 9: *The Xylophone* (page 221) and Notebook Sheet 10: *The Kalimba* (page 222)
6. Magnets and Tools Students work with magnets and find that two magnets will either attract or repel one another, depending on their orientation. They read about and view a video on how tools and machines make things move.	• Two magnets attract or repel when they come together • The magnetic force (push or pull) acts through space and most materials • Tools and machines can apply forces to make things move	• Part 1: Teacher Observation: Identifies and articulates force acting to move objects without touching them/Assessment Checklist (pages 266-269) • Part 2: Notebook Sheet 13: *Tools and Machines* Review (page 255) • End-of-Module Assessment (pages 290-298)