Kindergarten Grade Mystery Science Strand K.3 Forces, Motion, and Interactions
Salt Lake City School District 2020-2021

Mystery Science Lesson Rationale:
Mystery Science Lessons seek to promote engagement and inspire excellence in students' mastery of science and engineering. The lessons support our vision and mission of equity and access in elementary science. The sequence of Mystery Science Full Lessons supports Kindergarten students' sense making with respect to Force, motion & interactions using three- dimensional instruction. The sequenced Mystery Science Lessons support Kindergarten teachers in implementing the new Utah SEEd Standards about "Forces, motion, and interactions" identified specifically in the Prioritized SEEd Pacing Guide. Lessons include a video focused on a phenomenon, a hands-on activity, and an assessment. The lessons are designed to take students approximately 60 minutes to complete. Most lessons use minimal materials, such as printouts and pencils. Additionally, most paper printouts can be downloaded individually from the Mystery Science Lessons website in the form of an editable document that can be assigned through Canvas. Some lessons suggest markers, group work, or demonstrations. Teachers can make easy modifications to these lessons based on students and teachers' resources.

Note: Use a Science Notebook or print the Mystery Science PDF Booklet for students to complete the lesson series below.
You can also print individual lesson materials by following the links in the ***Materials per student and Assessments***.

Strand K.3 Forces, Motion, and Interactions
The motion of objects can be observed and described. Pushing or pulling on an object can change the speed or direction of an object's motion and can start or stop it. Pushes and pulls can have different strengths and different directions. A bigger push or pull makes things go faster and when objects touch or collide, they push on one another and can change motion.

Standard K.3.1 Forces
Plan and conduct an investigation to compare the effects of different strengths or different directions of forces on the motion of an object. Emphasize forces as a push and pull on an object. The idea of strength should be kept separate from the idea of direction. Non-contact forces, such as magnets and static electricity, will be taught in Grades 3 through 5. (PS2.A, PS2.B, PS2.C, PS3.C)

Mystery Science Lesson	Suggested Date and SEEd Alignment	Materials and Assessments	Remote Learning Modifications
Teacher information Force Olympics Unit	SLCSD 20/21 Prioritized Pacing Guide	**Mystery Science Handouts Pdf**	**Get Ready to Teach** Make sure ALL students have copies of the handouts
Lesson 1: What is the biggest excavator? In this lesson, students	**April 5** SEEd Standard K.3.1 **Disciplinary Core Ideas**: Foundational for PS2.A, PS2.B, PS2.C Pushes and pulls	**Materials per Student:** *No supplies needed **Extension:** Draw a machine doing work	**Ready to Teach** ***Teaching in the classroom*** ● Students can work solo ***Teaching Online*** ● Students can work solo

discover that there are pushes and pulls involved in any kind of work, including the work done by machines. In the activity, Be a Digging Machine, students pretend to use shovels and excavators to dig a hole for a swimming pool.	**Science and Engineering Practice:** Planning and carrying out an investigation & Construct an explanation **Crosscutting Concept:** Cause and effect	**Literature connection:** **Readworks-** The Flying Machine **Assessment:** Mystery 1 Assessment	
Lesson 2: Why do builders need so many machines? In this Read-Along lesson, Vivian watches a house being built and wonders why the builders need so many big machines. The lesson includes a short exercise where students act out the "work words" of their favorite machine. You can extend the lesson with the optional activity, Forces at Work, where students watch videos of construction equipment and practice using work words to describe what the machines are doing.	**April 12** SEEd Standard K.3.1 **Disciplinary Core Ideas**: Foundational for PS2.A, PS2.B, PS2.C Pushes, Pulls & "Work Words" **Science and Engineering Practice:** Obtain, evaluate, and communicate information **Crosscutting Concept:** Cause and effect	**Materials per Student:** *No supplies needed **Literature connection:** **Readworks-** Engineers solve problems **Assessment:** Mystery 2 assessment	**Ready to Teach** ***Teaching in the classroom*** ● students work solo ***Teaching Online*** ● Students work solo
Lesson 3: How can you knock down a wall made of concrete? In this lesson, students change the	**April 19** SEEd Standard K.3.1 **Disciplinary Core Ideas**: PS2.A, PS2.B, Foundational	**Materials per student:** Game Station Set printout Blank paper (8.5 X 11") Scotch tape Yardstick or meterstick Large binder clips (2")	**Demo Activity** ***Teaching in the classroom*** ● Set up one Game Station to demonstrate the activity and ask students to make observations. ***Teaching Online***

strength and direction of a wrecking ball's push in order to solve a tricky problem. The activity, Don't Crush That House, is a game in which students experiment with the force of a paper wrecking ball in order to knock down a wall of cups. The challenge is: they can't knock down the paper houses!	PS3.C and ETS1.A Motion, Speed, & Strength **Science and Engineering Practice:** Planning and carrying out an investigation & Use Models & Analyze and interpret data **Crosscutting Concept:** Cause and effect	Masking tape Solo cups (9 oz) String **Literature connection:** **Readworks-** **Will you push or pull?** **Paddle a canoe:** **Stuck in the Snow:** **Assessment:** Mystery 3 assessment	●Set up one Game Station and demonstrate the activity over video conference. Ask students to make observations.
Lesson 4: How can you knock down the most bowling pins? In this Read-Along lesson, Daniel worries he won't do well at a friend's Bumper Bowling party…until he figures out an unexpected way to win. The lesson includes a short exercise where students act out bowling. If you want to extend the lesson, you can try this optional activity, Human Bumper Bowling, where students make a model bumper bowling alley and work together to knock down pins.	**April 26** SEEd Standard K.3.1 **Disciplinary Core Ideas**: PS2.A, PS2.B, Foundational PS3.C Speed & Direction of Force **Science and Engineering Practice:** Planning and carrying out an investigation **Crosscutting Concept:** Cause and effect	**Materials per student:** Hardcover books Yardstick or meterstick Masking tape Solo cups (9 oz) Tennis Balls **Literature connection:** **Readworks-** Bowling Racing across the water **Assessment:** Mystery 4 assessment	**Substitute Activity** ***Teaching in the classroom*** ● We suggest you play **Balloon Bounce** with your students. You will need to inflate balloons and provide a paper plate paddle for your students. Play the game with each student at a safe distance from one another. ***Teaching Online*** ●We suggest you assign **Balloon Bounce** to your students. Send home a balloon and a paper plate paddle with each student. Students will need a partner to help inflate their balloon and play the game.
Lesson 5: How can we protect a mountain town from falling rocks? In this lesson, students investigate how pushes can change the speed and direction of falling	**May 3** SEEd Standard K.3.2 **Disciplinary Core Ideas**: PS2.A, PS2.B, PS3.C, ETS1.B, ETS1.C Direction of Motion & Engineering	**Materials per student:** **Tiny Town Houses** printout Hardcover books Corrugated cardboard Dixie cups (3 oz) Large Binder Clips (2") Masking tape Push pins Ping pong balls	**Demo Activity** ***Teaching in the classroom*** ●Set up one Game Station to demonstrate the activity. Have students make the decisions about where the pushpins should go to protect the town. ***Teaching Online*** ●Set up one Game Station to demonstrate the activity over

objects. In the activity, Boulder Bounce, students play a game where they design a solution that protects a model town called Tiny Town from a bouncing-ball "boulder."	**Science and Engineering Practice:** Constructing explanations and designing solutions **Crosscutting Concept:** Cause and effect	**Literature connection:** **Epic:** Pushing and Pulling by Natalie Hyde Changing Direction by Natalie Hyde **Readworks:** Will you push or pull? Who Can pull harder? **Assessment:** Mystery 5 Assessment	video conference. Have students make the decisions about where the pushpins should go to protect the town.
Lesson 6: How could you invent a trap? In this Read-Along lesson, twins Mimi and Lulu try different ways to catch a mysterious nighttime visitor…until they hit on just the right solution. The lesson includes a short exercise where students imagine how to design a good monster trap, and then pretend to be sneaky monsters. You can extend the lesson with the optional activity, Be an Inventor, where students draw their own inventions for machines that do chores.	**May 10** SEEd Standard K.3.2 **Disciplinary Core Ideas**: PS2.A, ETS1.A, ETS1.B, ETS1.C Forces & Engineering **Science and Engineering Practice:** Constructing explanations and designing solutions **Crosscutting Concept:** Structure and function	**Materials per student:** *no supplies needed **Literature connection:** **Readworks:** Edison Tried and Tried Again Ben Franklin's Idea Ben invented Swim Fins **Assessment:** Mystery 6 assessment	**Ready to Teach** ***Teaching in the classroom*** ●Students can work solo. ***Teaching Online*** ● Students can work solo