

Balance and Motion-2nd Grade
September 26, 2012-DRAFT

Timeframe 10 weeks

Standards	Assessment/ Student Evidence	Academic Vocabulary	Resources
SYSA A system is a group of interacting parts that form a whole.	Give examples of simple physical systems (e.g. pencil system, spinning top, wheels or roller coaster) and explain how different parts make up the whole.	System Parts Whole	<i>Balance and Motion</i> Teacher's Guide by FOSS Class book sets of: <i>Foss Science Stories: Balance and Motion</i> developed by Lawrence Hall of Science (return all books with kit)
SYSB A whole object, plant, or animal may not continue to function the same way if some of its parts are missing.	Explain how the parts of a system depend on one another for the system to function. (e.g. pencil system needs a popsicle stick, wires and counterweights assembled in a certain way with counterweights below the balance point to balance the pencil)		
SYSC A whole object, plant or animal can do things that none of its parts can do by themselves.			
SYSD Some objects need to have their parts connected a certain way if they are to function as a whole.			

Power Standards in green

Complementary Standards in yellow

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INQB A scientific investigation may include making and following a plan to accurately observe and describe objects, events, and organisms; make and record measurements and predict outcomes	Work with other students to make and follow a plan to carry out a scientific investigation. Actions may include: accurately observing and describing objects and events; measuring and recording data and predicting outcomes. (e.g. make a wheel system and record distance traveled)	Observe Investigate Measure Predict Record	
INQF Scientists develop explanations, using observations (evidence) and what they already know about the world. Explanations should be based on evidence from investigations.	Accurately describe results, referring to the graph or other data as evidence. Draw a conclusion about the question that motivated the study using the results of the investigations as evidence. (e.g. determine which wheel system travels the greatest distance)		
INQG Scientists make the results of their investigations public, even when the results contradict their expectations.			
APPA Simple problems can be solved through a technological design process that includes; defining the problem, gathering information, exploring ideas, making a plan, testing possible solutions to see which is best, and communicating the results.	Design a solution to a simple problem (e.g. design a roller coaster runway system with a loop so a marble can travel through without falling)		

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APPB Scientific ideas and discoveries can be applied to solving problems.			
APPE Successful solutions to problems often depend on selection of the best tools and materials and on previous experience.	Evaluate how well a selected tool solved a problem and discuss what might be done differently to solve a similar problem. (e.g. Evaluate different types of discs to create an effective wheel system)	Tool	
PS1B There is always a force involved when something starts moving or changes its speed or direction of motion.	Identify the force that starts something moving or changes its speed or direction of motion.	Force Motion Direction Speed	
PS1A Motion is defined as a change in position over a period of time.			
PS1A (K-1) The position of an object can be described by locating it relative to another object's surroundings.			
PS1C (K-1) A force is a push or a pull. Pushing or pulling can move an object. The speed an object moves is related to how strongly it is pushed or pulled.	<ul style="list-style-type: none"> When asked to move an object farther, respond by pushing or pulling it more strongly. Explain that the push or pull is a force. (e.g. a zoomer is put in motion by pulling on the string) 	Push Pull	
PS1C A greater force can make an object move faster and farther. <i>*added 9/12</i>	<ul style="list-style-type: none"> Give examples to illustrate that a greater force can make an object move faster than a lesser force. (e.g. pushing the wheel system harder makes the system go faster/farther) 		

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PS1D The relative strength of two forces can be compared by observing the difference in how they move a common object. <i>*added 9/12</i>	<ul style="list-style-type: none"> Measure and compare the distances moved by an object (e.g. a toy car) when given a small push and when given a big push. 	Measure Distance	
PS1D (K-1) Some forces act by touching and other forces can act without touching.			
PS3A Heat, light, motion, electricity, and sound are all forms of energy.	<ul style="list-style-type: none"> Give examples of different forms of energy as observed in everyday life (e.g., a top has energy of motion while spinning) 	Energy Motion Energy	

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