

## Appendix 14B: TIMSS 2015 Fourth Grade Science Item Descriptions Developed During the TIMSS 2015 Benchmarking

### Items at Low International Benchmark (400)

#### Life Science

S02\_01 Identifies examples of animals that lay eggs

S03\_01 Recognizes the mammal from among four pictures of animals

S14\_02 States one way to avoid catching illness in a crowded space (1 of 2 points)

S14\_03 Analyzes a diagram to explain which flower will grow better

#### Physical Science

S04\_08 Classifies materials as solids, liquids, or gases

S07\_06 Recognizes ice as the solid form of water

S08\_06 Identifies a way to sort objects containing metals

S10\_06 Recognizes the states of matter of three different materials

### Items at Intermediate International Benchmark (475)

#### Life Science

S01\_01 Recognizes the function of seeds

S01\_02 Recognizes that the body needs more oxygen during exercise

S01\_06





S12_04A	Interprets data from an investigation to recognize the best condition for growing plants
S12_05	Relates factory pollution to its effect on farm fields
S13_01	Recognizes that in mammals, a male and female of the same kind are needed to reproduce
S13_02	Explains that germs can be transmitted even when people do not appear to be sick
S13_05	Identifies a function of a plant's stalk by interpreting an observation from an investigation
Physical Science	
S01_12	Names a source of energy other than coal, oil, or natural gas that is used to produce electricity
S02_07	Explains the function of a battery in an electric circuit
S02_10A	Recognizes which direction to apply a force to reverse the direction of a moving object
S03_08	Given a list of five everyday objects, recognizes which ones conduct electricity
S05_09B	Evaluates between two methods which would dissolve a piece of candy faster
S06_08	Recognizes from a list which are sources of energy and which are not
S06_10	Explains how a sweater can keep a bottle of water cold
S07_04	Identifies the cause of a shadow forming
S07_11	From a diagram, identifies the orientation of the poles on two repelling magnets
S08_08	Recognizes what happens to the water when a puddle of water on a metal tray becomes smaller
S08_10	Explains why pressing a guitar string stops the sound
S09_07	Describes a difference between ice and water in addition to their physical states
S09_09A	Identifies from a diagram how a shadow is formed
S11_06	States a reason for the color change and surface roughening of a metal object over time
S11_08	Gives a reason why two objects of the same shape and size travel different distances after a push
S11_09	Using a model of a flashlight, identifies an object that can be used to complete an electrical connection
S12_09A	Explains why boiling decreases the amount of water in a container
S12_09B	Predicts the effect on a cold window glass of boiling water nearby
S13_07	Observes that two metal bars repel and determines whether they are magnets







S07_12	Recognizes how long it takes for Earth to orbit the Sun
S07_13	States two things that make up Earth's crust (2 of 2 points)
S09_11	Identifies how fish fossils are formed
S10_10B	Synthesizes precipitation information from a graph and diagram to recognize the best area to plant a crop in a given climate
S11_10	Identifies that clouds are made of water droplets
S11_12	Interprets a diagram of the Earth and the Sun to describe how Earth turning on its axis causes day and night in a particular location
S12_01	Recognizes which place is likely to have weather that is hot and wet
S13_10	Identifies the diagram that shows relative amounts of water and land on the Earth's surface
S14_10	Relates two different environments and weathering effects on rocks





