

## MindBug- in-Science Sessions

\$	Full-Day Sessions	Essential Questions / Description
1	Further, Faster: Science and Math Performance Tasks for Motivating High Achievers	Choose the stations to fit your needs. This day consists of a series of 1-hour demonstrations to students in order to benefit both students and the teacher.
2	Nature of Science for Elementary Teacher: How to Set up Experiments that Work	Choose the stations that fit your needs.
3	K-1 Square Foot Science: Integrating science into the K-1 classroom environment	Essential Question: How do you build a foundation in science to students who can't read or write?  Session Description: Square Foot Science makes science in the classroom an effortless journey of discovery. Start with a space as small as 1ft by 1ft. Basically, a space as small as a boot box offers the starting point for inquiry based science. With a few simple tools anyone can build a science program that gets results!
4	2-3 Basic Science: Great Starts for beginning scientists and engineers	Set up a model classroom that gets children started off right in the sciences.
\$	Half or Full-Day Sessions	Essential Questions / Description
1	Intro to Successful Inquiry Learning: <i>1080 TILT Toward Inquiry</i>	Essential Questions: What is inquiry-based teaching? How do I encourage students to ask questions and find answers? Session Description: Inquiry is what scientists DO. Participants learn to provide students with concrete, active learning experiences that challenge students to ask questions. The topic for inquiry will be Mixtures and Solutions: participants take part in various levels of inquiry from beginner to expert. Insights will enable teachers to be more affective facilitators in the pursuit of knowledge. Learn when to offer help and when to bite your tongue. Turn mistakes into opportunities, and identify meaningful learning opportunities. Introduce inquiry in the classroom without losing control of the class!
2	Inquiry Through Astronomy: Scale and Planets	Essential Questions: What is the difference between mass and weight? How do the densities of planets vary?  Session Description: Participants create a 3-D model of the solar system to compare planets with respect to mass. The outcomes will surprise you. Focus on DEEPLY understanding scale, density, volume, mass and weight. In this session, participants gain a sense of the importance of measurement and scale in science.
3	Earth, Geology: Constructive and Destructive Forces	Essential Questions: What are constructive and destructive forces in earth science? What is the rock cycle? Session Description: Stop taking landforms for "granite!" The results of combined constructive and destructive forces, landforms are the foundation for a series of inquiry-based investigations. Dig into constructive forces like crustal deformation, volcanic eruption and deposition of sediment. Unearth destructive forces like weathering and erosion. Build a bedrock of solid knowledge in landforms, forces and the rock cycle.
4	Earth, Atmosphere: Weather, Climate, Water and Cycles	Essential Questions: What causes the seasons? Which natural cycles affect life on earth? How are weather and climate different? Session Descriptions: Investigate weather and climate through a series of inquiry-based and standards-focused activities. The Earth undergoes constant change. Natural cycles balance and regulate Earth and its atmosphere, but human activities can cause changes to these natural cycles. Participants will examine the connected phenomena that recycle earth's natural resources.
5	Energy (Waves and Vibrations): Light	Essential Questions: What property of light allows us to see objects? How can light be a particle AND a wave? Session Descriptions: You don't need expensive models to teach the subject of light! Investigate colors and patterns on a curved surface with soap and water. Discover the colors of visible light with fingernail polish and rainbows. A series of inquiry-based, standards-oriented stations help participants experience major themes in the study of visible light.
6	Energy (Waves and Vibrations): Sound	Essential Questions: What causes sound waves? What are the characteristics of sound waves? Session Descriptions: Believe it or not, sound waves, ocean waves and earthquake waves have a lot in common. This dynamic series of investigations introduces participants to the general topic of waves and vibrations. Participants take part in a series of activities that offer insight into the fundamental similarities and differences among various waves. The course focuses on wave connections across the sciences.

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7 & 8	Energy (Electromagnetic Forces): Electricity & Magnetism	<p>Essential Questions: What is the relationship between electric and magnetic forces? What is a magnetic field? What might electricity have to do with “carbon footprints?”</p> <p>Session Descriptions: Enlightening challenges peak interest in electricity and magnetism. Create and use circuit boards to change the intensity of light, experiment with static electricity and bend water with electric current. Experiment with magnets, magnetic fields and electromagnetic forces to gain understanding of many phenomena studied in the earth and physical sciences. Participants will walk away with a clear understanding about this fundamental force of nature.</p>
9	Forces and Motion: Newton Knew (3 laws in action)	<p>Essential Questions: What are Newton's Three Laws of motion? How can forces that keep planets in motion be the same forces that keep a race car moving on its oval track?</p> <p>Session Description: Basic inquiry and scientific method form the basis for an investigation into the way things move. What Newton knew, so can you! In this session, participants examine the forces of gravity, friction, inertia, acceleration, momentum and balanced/unbalanced forces. How do things move in straight lines and in circles? Use radio controlled cars to investigate Newton's 1st, 2nd and 3rd laws.</p>
10	Forces and Motion: FastTrack Challenges and Data Collection	<p>Essential Questions: What are forces, speed, acceleration, work and power? How can you use math to understand them?</p> <p>Session Description: Use engaging tools to illustrate applied science and how math can illuminate the situation. Using RC cars that students learn, learn to integrate physical science, earth science and math by showing how measuring data and organizing that data in a graph can lead to improvement in a series of FastTrack Challenges. Extrapolate what you learn to apply the lessons to common tools you may already have in your classroom.</p>
11	Life on a micro scale (Microscopes)	<p>Essential Questions: What are the building blocks of living organisms?</p> <p>Session Descriptions: Recognize cells as an organizing structure for living matter. Participants dig deeper into life on a micro scale, observing living and non living objects with hand lenses and various microscopes. Build a deeper understanding of matter, cells and a world we can only see with the aid of technology.</p>
12	Life on a macro scale (Energy and Systems)	<p>Essential Questions: What processes transfer energy from the Sun, to the Earth, to food and to moving bodies?</p> <p>Session Descriptions: Participants use games and investigations to examine the flow of energy from the Sun to the kitchen table. How much solar energy moves through the earth's biosphere, and how does that affect the food chain? What are the four trophic levels of the food web? What are body systems, and how has life adapted to various parts of the earth?</p>
13	Science Centers: Make and Take for remediating and maintaining basic content	<p>Essential Questions: How do you maintain skills taught in previous grades while teaching new ones each year?</p> <p>Session Description: Participants create centers for each strand of the state curriculum standards to allow them to maintain and reinforce skills that have been previously taught. The centers format can be applied to any subject and any grade.</p>
14	Cleaning Out Your Closets: Teaching with the tools you already have.	<p>Essential Questions: What do you have, what do you need and how do you use materials to best serve students?</p> <p>Session Description: A service in which we identify materials you have on hand, what materials you may need to order. Participants work with the Ten80 team on how to best organize materials to be the most effective for teachers and students?</p>