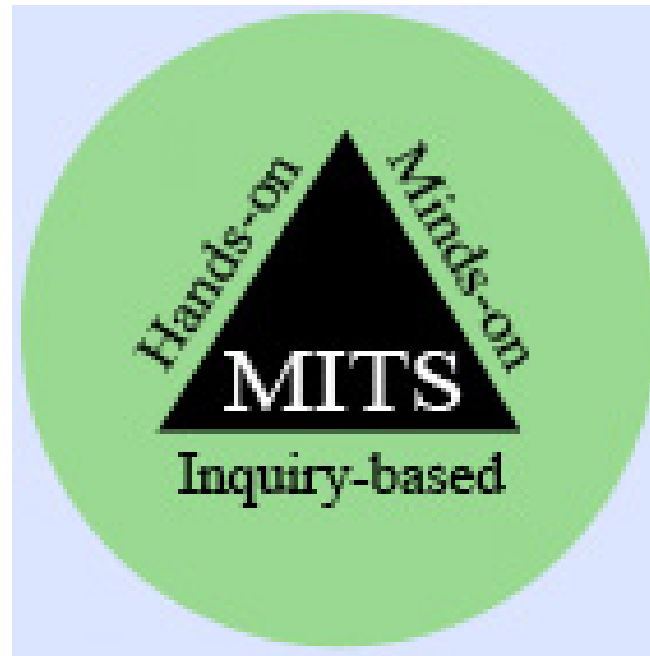


MIT

Museum Institute for Teaching Science

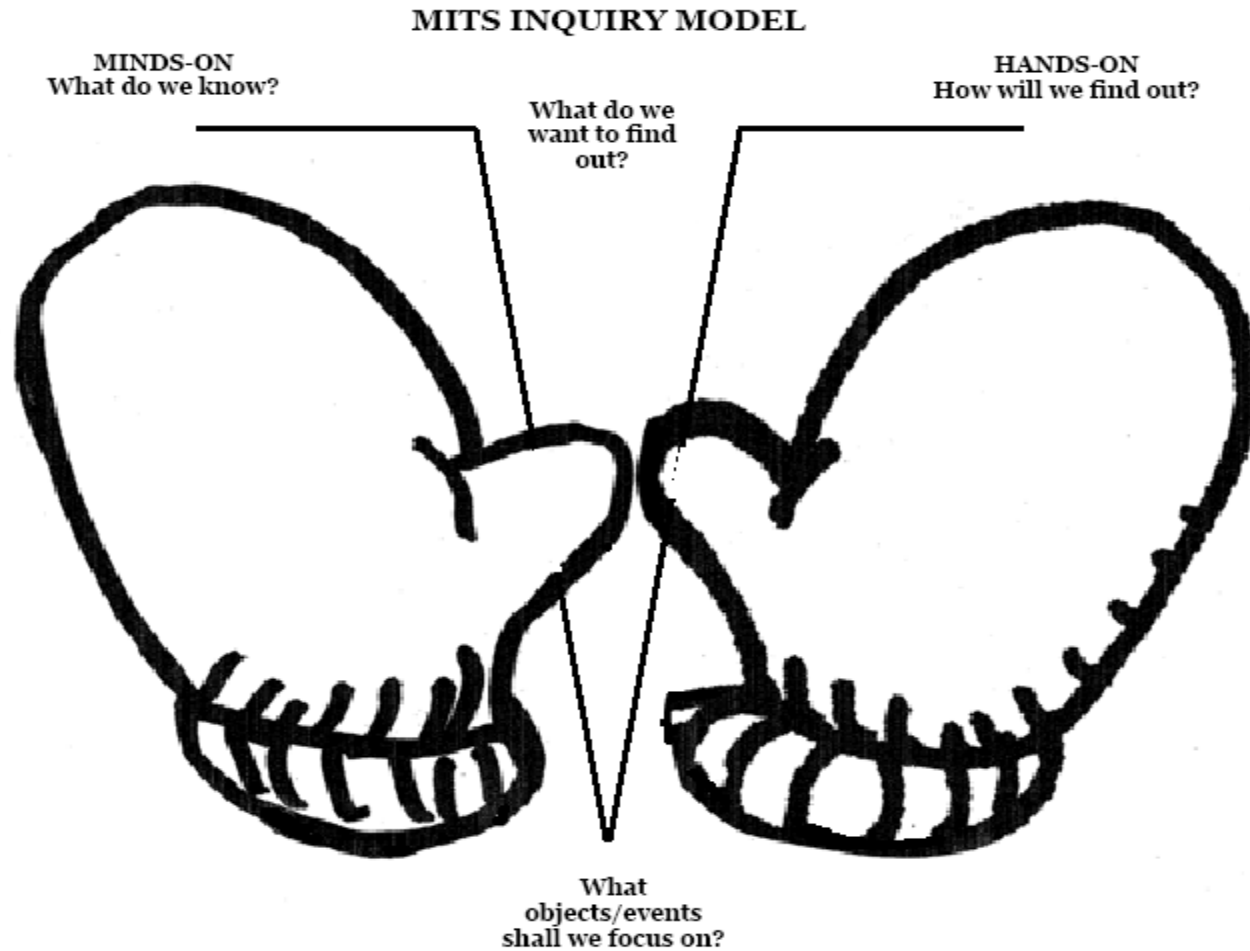


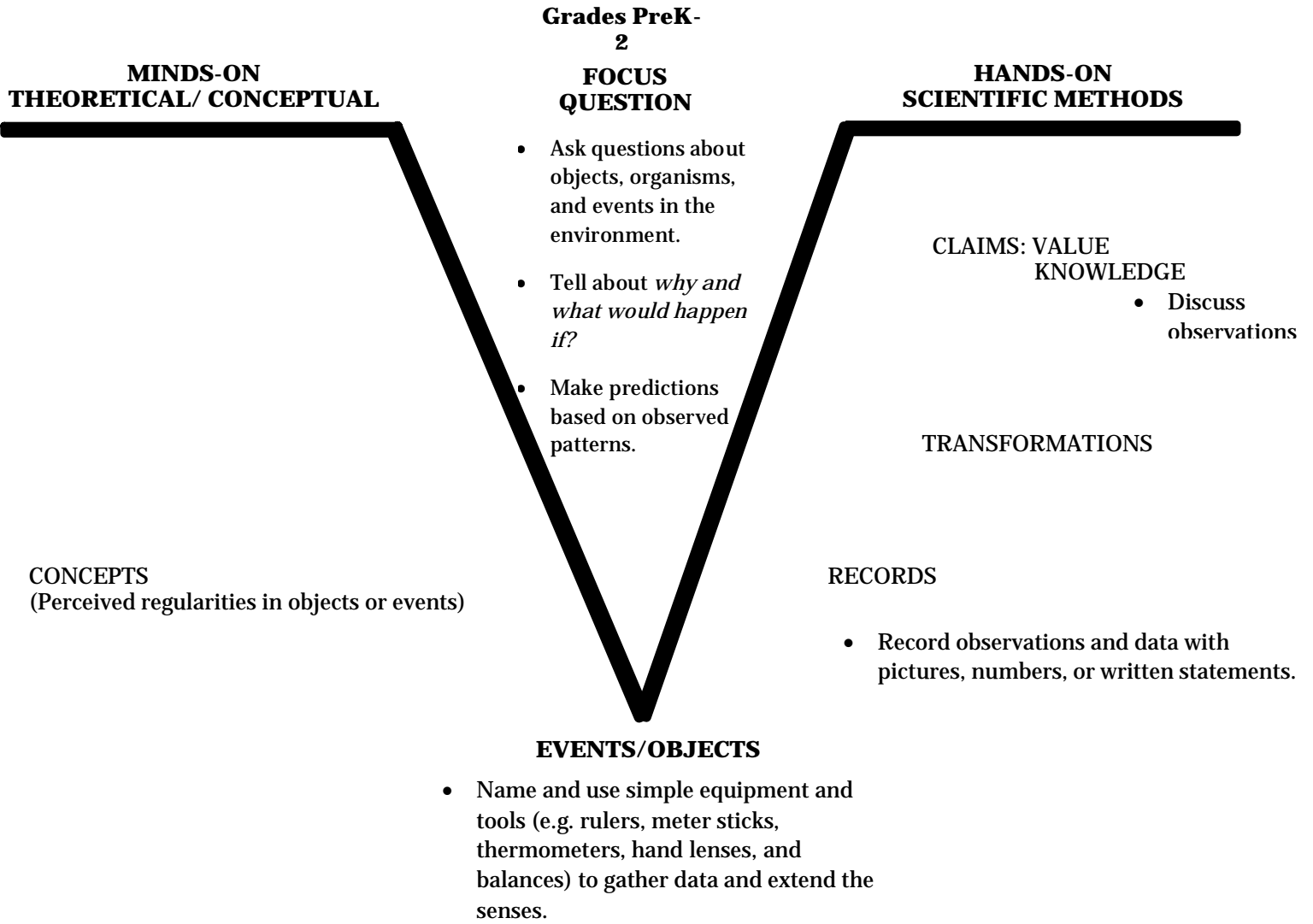
Minds-on, Hands-on, Inquiry-based STEM Education

Science Goals

- Review MITS Inquiry Model: Content and Process adapted to Grades PreK-5
- Link Science Inquiry and Literacy
- Hands On Activity: Forms of Water
- Where to Next? Linking to a Conceptual Unit, Further Inquiry, and Reading Resources

MITIS Inquiry Model





Grades 3-5

**MINDS-ON
THEORETICAL/ CONCEPTUAL**

**FOCUS
QUESTION**

**HANDS-ON
SCIENTIFIC METHODS**

- Ask questions and make predictions that can be tested.
- Conduct multiple trials to test a prediction. Compare the result of an investigation or experiment with the prediction.

**CLAIMS: VALUE
KNOWLEDGE**

- Communicate to others in oral and
- Recognize simple patterns in data and use data to create a reasonable explanation for

PRINCIPALS/CONCEPTUAL SYSTEMS

TRANSFORMATIONS

- Transform data into graphs, charts, maps and models

CONCEPTS
(Perceived regularities in objects or events)

RECORDS

- Keep accurate records while conducting simple investigations or experiments.

EVENTS/OBJECTS

- Select and use appropriate tools and technology (e.g. calculators, computers, balances, scales, meter sticks, graduated cylinders) in order to extend observations.

Linking Science Inquiry to MITS Model & Literacy

- Engage and Explore (*Focus Question about Events and Objects*)
- Design and Conduct Scientific Investigations (*Records*)
- Analyze and Interpret Data (*Transformations*)
- Present Findings and Understandings (*Claims of Value and Knowledge*)

Hands on Activity

- **Forms of Water:** liquid, solid, gas
 - Fill 1st cup to line with hot water
 - Place 2nd cup on top.
 - Balance ice in the baggy on top.
 - Observe: write and draw what you see on the sheet provided
- What do you notice about the water inside the cups?
- When you take the top cup off and look inside, what do you notice?

Where to Next?

- Continue a series of hands-on activities that build student's conceptual structure toward a larger unifying concept: water cycle
- Build on student's questions by encouraging more guided and open-ended inquiry
- Build on student's questions by directing them to appropriate reading materials
- Additional resources in bibliography
- Can receive additional inquiry experience at MITS Summer Institutes