

## Science Benchmark Clarification, Instruction, and Assessment

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**Strand II:** Reflect on the Nature, Adequacy, and Connections Across Scientific Knowledge

**Content Standard 1:** All students will analyze claims for their scientific merit and explain how scientists decide what constitutes scientific knowledge; how science is related to other ways of knowing; how science and technology affect our society; and how people of diverse cultures have contributed to and influenced developments in science. (Reflecting on Scientific Knowledge)

### **Benchmark**

Develop an awareness of the need for evidence in making decisions scientifically.  
(SCI.II.1.E.1)

### **Benchmark Clarification**

In the scientific world, decisions must be based on factual evidence that can be replicated.

Students will determine if an explanation is supported by factual data, personal opinion, naïve statement, or misconception.

### **Key Concepts (voc.)/Tools**

Observation; (K-2)

Data, evidence, sample, fact, opinion. (3-5)

### **Real-World Context**

Deciding whether an explanation is supported by evidence gathered in simple experiments, or relies on personal opinion.

### **Resources:**

<http://mtn.merit.edu/mcf/SCI.II.1.E.1.html>

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### **Benchmark**

Show how science concepts can be illustrated through creative expression such as language arts and fine arts. (SCI.II.1.E.2)

### **Benchmark Clarification**

Creative expressions can be used to build and support science concepts. Students will use creative expression to interpret a science concept through poetry, music, murals, illustrations and movement.

For example:

- Rainbow Poem
- Rhythm Band
- Spring Dance
- Mural of the Seasons

### **Key Concepts (voc.)/Tools**

- Poetry
- Expository work
- Painting
- Drawing
- Music
- Diagrams
- Graphs
- Charts.

### **Real-World Context**

Explaining simple experiments using paintings and drawings; describing natural phenomena scientifically and poetically.

### **Resources:**

<http://mtn.merit.edu/mcf/SCI.II.1.E.2.html>

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### **Benchmark**

Describe ways in which technology is used in everyday life. (SCI.II.1.E.3)

### **Benchmark Clarification**

Students will describe how technology has made their life easier, faster, and more convenient or complex.

### **Key Concepts (voc.)/Tools**

Provide faster and farther transportation and communication, organize information and solve problems, save time.

### **Real-World Context**

Cars, other machines, radios, telephones, computer games, calculators, appliances, the World Wide Web

### **Resources:**

<http://mtn.merit.edu/mcf/SCI.II.1.E.3.html>

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### **Benchmark**

Develop an awareness of and sensitivity to the natural world. (SCI.II.1.E.4)

### **Benchmark Clarification**

There is a natural balance on Earth that affects all organisms. Students will examine the effects they have on the natural world. Students will show how all organisms relate to and influence the balance in the natural world.

### **Key Concepts (voc.)/Tools**

Appreciation of the balance of nature and the effects organisms have on each other, including the effects humans have on the natural world.

### **Real-World Context**

Any in the sections on Using Scientific Knowledge appropriate to elementary school.

### **Resources:**

<http://mtn.merit.edu/mcf/SCI.II.1.E.4.html>

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### **Benchmark**

Develop an awareness of contributions made to science by people of diverse backgrounds and cultures. (SCI.II.1.E.5)

### **Benchmark Clarification**

Interested and capable people from all cultures and of all ages are encouraged to become part of the scientific community. Students will recognize that all people, regardless of age, race, creed or gender, can and have made important contributions to science.

### **Key Concepts (voc.)/Tools**

Scientific contributions made by people of diverse cultures and backgrounds.

### **Real-World Context**

Any in the sections on Using Scientific Knowledge appropriate for this benchmark.

### **Resources:**

Culturally Relevant Materials for Science Education (Link)  
<http://mtn.merit.edu/mcf/SCI.II.1.E.5.html>