TABLE 1

Activities presented using the 5E Instructional Model.

Stage	Activity/Activities	Guiding Questions	Differentiation Strategies
ENGAGE	• Observe a hand boiler to engage students • Introduce a thermometer to activate prior knowledge	• What happens when we hold it? • Why do you think that happens? • How is a thermometer like the hand boiler? • How is it different? • How does a thermometer work?	• Use a "Think-Pair-Share" strategy to help ELL learners discuss their ideas with each other before responding in the whole-group discussion
EXPLORE	• Place thermometers in cups of water at different temperatures and have students observe changes to the thermometer • Construct a class anchor chart that documents their observations and answers their questions	• What do you think causes the liquid in the thermometer to change? • What is the effect when you put a thermometer in water? • Cold water? • Room-temperature water? • Warm water? • What do you think the numbers are for? What do they tell us? • Why are there TWO different sets of numbers?	• Use graphics to identify which cup of water is warm and which is cool (see Figure 1) • Model the activity in addition to giving oral instructions • Use illustrations on the anchor chart to help students visualize their observations • Partner students who have language deficits with students who are strong in oral language skills for the exploration activity
EXPLAIN	• Ask questions that build concepts based on student observations • Read a book about thermometers and/or temperatures • Watch a video that explains how thermometers work	• What did you discover about thermometers? • How do thermometers work? • What can thermometers be used for? • What are the numbers for on a thermometer? • What does the "F" mean on a thermometer? • What does the "C" mean on a thermometer?	• Use kinesthetic modeling for terms such as expand and contract • Include explanation activities from multiple modalities (text, video, songs, etc.) • Provide additional reading materials for advanced/gifted learners • Provide video options in different languages for ELL students
ENGAGE	• Observe a hand boiler to engage students • Introduce a thermometer to activate prior knowledge	• What happens when we hold it? • Why do you think that happens? • How is a thermometer like the hand boiler? • How is it different? • How does a thermometer work?	• Use a "Think-Pair-Share" strategy to help ELL learners discuss their ideas with each other before responding in the whole-group discussion
EXPLORE	• Place thermometers in cups of water at different temperatures and have students observe changes to the thermometer • Construct a class anchor chart that documents their observations and answers their questions	• What do you think causes the liquid in the thermometer to change? • What is the effect when you put a thermometer in water? • Cold water? • Room-temperature water? • Warm water? • What do you think the numbers are for? What do they tell us? • Why are there TWO different sets of numbers?	• Use graphics to identify which cup of water is warm and which is cool (see Figure 1) • Model the activity in addition to giving oral instructions • Use illustrations on the anchor chart to help students visualize their observations • Partner students who have language deficits with students who are strong in oral language skills for the exploration activity