Individual Benchmark Specifications for Grade 5

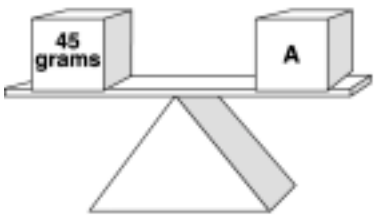
This section of the FCAT *Science Test Item and Performance Task Specifications* describes how the benchmarks are assessed on the FCAT. The benchmarks are defined in the *Sunshine State Standards* at four developmental levels corresponding to the following grade ranges: PreK–2, 3–5, 6–8, and 9–12. FCAT Science is administered in Grades 5, 8, and 10.

BENCHMARK SC.A.1.2.1

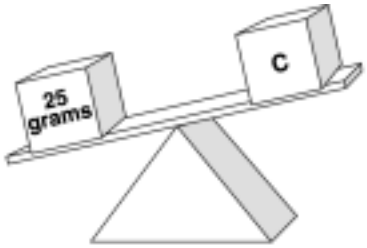
Strand	**A**	The Nature of Matter
Standard	**1**	The student understands that all matter has observable, measurable properties.
Benchmark	**SC.A.1.2.1**	The student determines that the properties of materials (e.g., density and volume) can be compared and measured (e.g., using rulers, balances, and thermometers).
Item Type(s)		MC
Benchmark Clarification		The student identifies properties and uses appropriate tools to determine the properties of materials.
Content Limits		Items may require the student to understand how balances, graduated cylinders, rulers, and thermometers are used to describe properties of materials. Items will NOT require the student to calculate density or volume.
Stimulus Attributes		Items may use diagrams or pictures of common, real-world tools.
Response Attributes		Items may have responses in the form of clearly labeled pictures or tools.

Sample MC Item

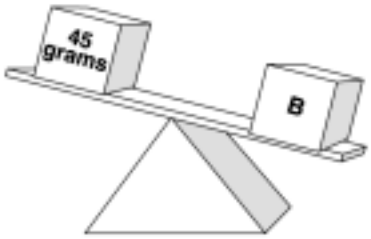
Henry is measuring the mass of four different blocks with letters on them. Look at the pictures below.



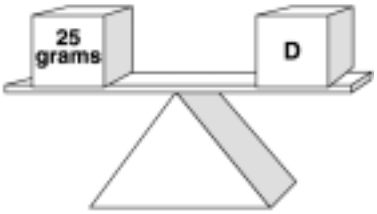
Balance A



Balance C



Balance B



Balance D

Which block has the **greatest** mass?

A. Block A
* B. Block B
C. Block C
D. Block D

BENCHMARK SC.A.1.2.2

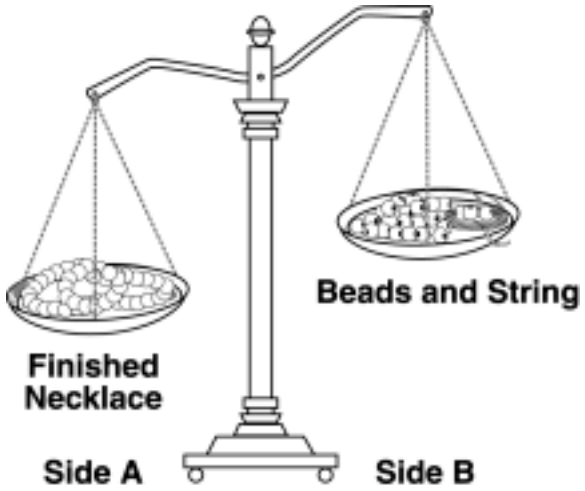
Strand	**A**	The Nature of Matter
Standard	**1**	The student understands that all matter has observable, measurable properties.
Benchmark	**SC.A.1.2.2**	The student knows that common materials (e.g., water) can be changed from one state to another by heating and cooling.
Item Type(s)		MC
Benchmark Clarification		The student identifies how a change in temperature can alter a material's state of matter.
Content Limits		Items will require the student to know that mass is conserved during heating or cooling. Items will NOT address chemical properties that change as a result of heating or cooling. Items will NOT require the student to memorize the boiling point or freezing point of water.
Stimulus Attributes		None specified.
Response Attributes		Items will have responses in the form of physical changes.
Sample MC Item		Elena placed 150 grams of water into the freezer. She wanted to see if freezing the water would change its mass. How will the mass of the water be affected when the water freezes? A. The mass will be greater. B. The mass will be smaller. C. There will no longer be a mass. * D. There will be no change to the mass.

BENCHMARK SC.A.1.2.3

Strand	**A**	The Nature of Matter
Standard	**1**	The student understands that all matter has observable, measurable properties.
Benchmark	**SC.A.1.2.3**	The student knows that the weight of an object always equals the sum of its parts.
Item Type(s)		MC
Benchmark Clarification		The student combines the weight or mass of components to get the total weight/mass of the combined object.
Content Limits		Items will use the kilogram as the unit of mass. Items will NOT assess chemical changes.
Stimulus Attributes		Items may provide the student with data in drawing or picture form.
Response Attributes		Items may require responses in the form of pictures, numbers, or scenarios. Items that include calculation will have responses in a minimum of multiples of five.

Sample MC Item

Jenny is making jewelry to sell at her school carnival. She has a box of plastic beads and wants all of the necklaces to have the same mass. She measures two lengths of string and makes a necklace that she thinks has a good mass. She puts her necklace on one side of a balance and two more lengths of string and a handful of beads on the other side as pictured below.



What should Jenny do first to make sure that the beads and the string have the same mass as the finished necklace?

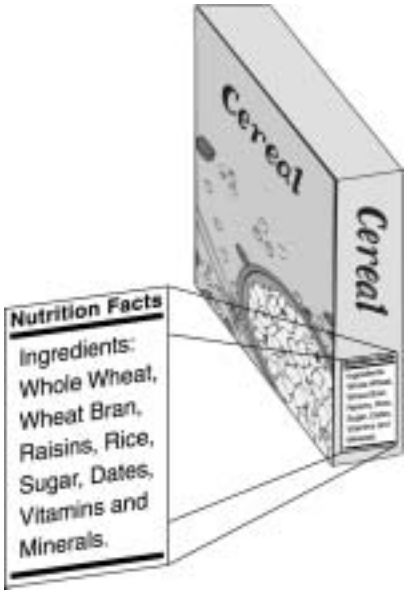
A. add beads to Side A until the balance tilts up
⋆ B. add beads to Side B until the balance is level
C. take beads off of Side B until the balance tilts up
D. take beads off of Side B until the balance is level

BENCHMARK SC.A.1.2.4

Strand	**A**	The Nature of Matter
Standard	**1**	The student understands that all matter has observable, measurable properties.
Benchmark	**SC.A.1.2.4**	The student knows that different materials are made by physically combining substances and that different objects can be made by combining different materials.
Item Type(s)		MC
Benchmark Clarification		The student identifies different materials made by physically combining substances and/or identifies similarities and differences between mixtures and solutions.
Content Limits		Items will NOT use examples of chemical changes.
Stimulus Attributes		None specified.
Response Attributes		None specified.

Sample MC Item

Cereals are made of many different ingredients. The diagram below shows some of these ingredients.



Which term describes the cereal?

A. compound
B. element
*C. mixture
D. solution

BENCHMARK SC.A.1.2.5

Strand	**A**	The Nature of Matter
Standard	**1**	The student understands that all matter has observable, measurable properties.
Benchmark	**SC.A.1.2.5**	The student knows that materials made by chemically combining two or more substances may have properties that differ from the original materials.
Item Type(s)		MC
Benchmark Clarification		The student identifies a change in properties as a result of a chemical change.
Content Limits		Items will indicate reactants and products have distinctly different characteristics. Items will include a complete description of the chemical process occurring. Items will NOT refer to the combination of more than two chemicals in a mixture or solution. Items may use common household substances.
Stimulus Attributes		Items may refer to common chemical reactions with which students are familiar.
Response Attributes		None specified.
Sample MC Item		Ming's class observed how baking soda reacts when combined with vinegar. The class noticed bubbles formed when Ming dropped vinegar onto the baking soda. Which type of change occurred when the vinegar was added to the baking soda? * A. chemical B. electrical C. mechanical D. physical

BENCHMARK SC.A.2.2.1

Strand	**A**	The Nature of Matter
Standard	**2**	The student understands the basic principles of atomic theory.
Benchmark	**SC.A.2.2.1**	The student knows that materials may be made of parts too small to be seen without magnification.
Item Type(s)		MC
Benchmark Clarification		The student identifies organisms or objects that are too small to be seen without a microscope.
Content Limits		Items will NOT require the student to identify parts of a cell.
Stimulus Attributes		None specified.
Response Attributes		Items may include reference to organisms or objects that are too small to be seen with a standard microscope.

Sample MC Item

The students in Mr. Santoro's science class collected a sample of pond water that appeared to be clear. They placed a drop of the pond water on a slide to view under the microscope.

Microscope

Which of the following should they expect to see in the pond water?

A. atoms
B. elements
C. molecules
* D. organisms