The Grade 11 Functional Independence Science Assessment was administered for the first time in Spring 2008. Beginning with this administration, the Office of Educational Assessment and Accountability (OEAA) will annually release a portion of the items that are administered on the assessment. This booklet contains released items from the Spring 2009 administration and is intended to be used by districts to assist in their interpretation of item analysis data. The information contained in this booklet may also be used by schools, teachers, and parents as a resource for understanding the content and format of the assessment items. In addition to MI-Access training materials and Extended Benchmarks (EB), the released items may also have utility in informing decisions related to instruction, curriculum, and assessment. These items are not secure and may be copied and distributed as needed.

The table below lists the number of core and released items administered on the Spring 2009 Grade 11 Functional Independence Science Assessment. Core items are those that count toward students’ scores. All released items in this booklet were selected from the pool of core items that appeared on the assessment.

### Functional Independence Science Grade 11

<table>
<thead>
<tr>
<th>Science Strand</th>
<th>Number of Core Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life</td>
<td>14</td>
</tr>
<tr>
<td>Physical</td>
<td>14</td>
</tr>
<tr>
<td>Earth</td>
<td>8</td>
</tr>
<tr>
<td>Constructing</td>
<td>2</td>
</tr>
<tr>
<td>Reflecting</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total Core Items/Points</strong></td>
<td><strong>40</strong></td>
</tr>
<tr>
<td><strong>Released Items</strong></td>
<td><strong>6</strong> (Numbers vary by strand and topic.)</td>
</tr>
</tbody>
</table>

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DIRECTIONS: Read each question. Choose the BEST answer for each question.
What happens when hair grows?

A  New hair cells are made.
B  The hair cells are stretched.
C  The hair cells get bigger.
Use the picture below to answer question R2.

R2  Which cells on the following page came from an onion?
**R3** Which part of a turtle has the *same* job as a human skeleton?

A. shell

B. foot

C. beak
R4  This is a drawing of an oxygen atom.

What is the central part of the atom called?

A  nucleus

B  proton

C  shell
**R5** What energy change occurs when batteries are being used?

- **A** sound to magnetic
- **B** mechanical to light
- **C** chemical to electrical
R6  A dolphin creates sound waves that reflect off objects.

The dolphin detects the reflected sound waves.

Why do dolphins do this?

A  It helps the dolphin swim faster.

B  It helps the dolphin to locate the nearest ocean.

C  It helps the dolphin find prey.
R7  A girl is canoeing on a river.

She notices there are grooves in the land on a steep hill next to the river.

What is the most likely cause of these grooves?

A  soil erosion from water

B  soil erosion from wind

C  digging in the soil by animals
R8 What would be the best thing to use to measure the thickness of ice?

A measuring tape

B thermometer

C coffee cup
R9 Why does it take longer to stop a car on an icy road when the temperature is above 32 degrees Fahrenheit?

A  The ice has started to melt into water.

B  The tires of the car are a lot smoother.

C  The driver is too cold to step on the brake.
Do not continue until instructed to do so.
Below is a list of the Extended Benchmarks (EB) for each released item found in this booklet. The chart contains the EB code, a brief description of what is measured, and the correct answer for each released item.

Full descriptions of the EB contained in the chart below are available for review and download at [www.mi.gov/mi-access](http://www.mi.gov/mi-access).

<table>
<thead>
<tr>
<th>Released Item Number</th>
<th>EB Code</th>
<th>STRAND or Abbreviated Descriptor/Scoring Focus</th>
<th>Answer Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>L.CE.FI.EB.III.1.h.1a</td>
<td>Recognize that multi-cellular organisms grow and reproduce.</td>
<td>A</td>
</tr>
<tr>
<td>R2</td>
<td>L.CE.FI.EB.III.1.h.2a</td>
<td>Recognize that plants and animals have specialized cells.</td>
<td>B</td>
</tr>
<tr>
<td>R3</td>
<td>L.OR.FI.EB.III.2.e.1ADDh</td>
<td>Identify specific variations of observable body parts in a variety of animals.</td>
<td>A</td>
</tr>
<tr>
<td>R4</td>
<td>P.ME.FI.EB.IV.1.h.3a</td>
<td>Identify the structural parts and electrical charges of atoms.</td>
<td>A</td>
</tr>
<tr>
<td>R5</td>
<td>P.CM.FI.EB.IV.2.h.4a</td>
<td>Identify common energy transformations in everyday situations.</td>
<td>C</td>
</tr>
<tr>
<td>R6</td>
<td>P.WV.FI.EB.IV.4.m.1ADDh</td>
<td>Recognize how sounds travel through different media.</td>
<td>C</td>
</tr>
<tr>
<td>R7</td>
<td>E.GE.FI.EB.IV.1.h.1a</td>
<td>Identify and/or describe surface features caused by the Ice Age.</td>
<td>A</td>
</tr>
<tr>
<td>R8</td>
<td>E.HY.FI.EB.V.2.e.1ADDh</td>
<td>Identify safety precautions with the three states of water.</td>
<td>A</td>
</tr>
<tr>
<td>R9</td>
<td>E.AW.FI.EB.V.3.e.3ADDh</td>
<td>Identify and explain appropriate safety precautions during severe weather.</td>
<td>A</td>
</tr>
</tbody>
</table>