Science LDA
Directions for Administration

Overview

The Science LDA asks students to demonstrate their knowledge of select science standards that align with the biology End-of-Course exam via activities that are facilitated and documented at a local level. A student who decides to access this option will need to demonstrate that she or he has knowledge of some of the major concepts assessed on the biology EOC. Students will be able to do so by completing activities aligned to the standards. Completion of the Science LDA in accordance with the procedures outlined in this document will fulfill the high school science graduation requirement for students with IEPs.

Science content addressed on the LDA

Following is a table that shows the science strands students must address. Students must complete an activity that addresses each strand at least once. This can be done using a combination of items across scenarios that address multiple strands. Examples are provided in later sections of this document.

<table>
<thead>
<tr>
<th>Crosscutting Strands</th>
<th>Life Science Big Ideas (EALR 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYS Systems</td>
<td>LS1 Processes within Cells</td>
</tr>
<tr>
<td>INQ Inquiry</td>
<td>LS2 Maintenance &amp; Stability of Populations</td>
</tr>
<tr>
<td>APP Application</td>
<td>LS3 Mechanisms of Evolution</td>
</tr>
</tbody>
</table>

Structure of the LDA

There are four science scenarios (Baking Bread, Wheat Field, Respiratory System, and Berry Search) each comprised of multiple items. The items in each scenario address multiple strands. Students can complete a combination of items within a scenario or across scenarios to fulfill the requirements.

Scenarios

Each of the science scenarios consists of a one to two page narrative with accompanying illustrations detailing a scientific concept (e.g., respiration) or an activity (e.g., baking bread) that directly address science content in the highlighted science strands (SYS, INQ, APP, LS1, LS2, LS3). Following each scenario are several items that relate to the scenario. Students may answer one or more items from any of the scenarios to meet the requirements of a complete assessment.
Administration

The science LDA can be administered in any academic setting including, but not limited to: science classes, CTE classes, electives, or a special education support class. The educator supporting the administration of the LDA can be a science teacher, elective teacher, special education teacher, or any other educator providing academic support to the student. Schools should consider each student’s particularly situation and corresponding support arrangements in determining the best use of schedule and personnel to accomplish the assessment.

Accessibility

All students who participate in the Science LDA will have a current Individual Education Program (IEP). In each student’s IEP will be documented accessibility approaches for participating in state testing. The, “Guidelines on Tools, Supports, & Accommodations for State Assessments” is applicable for students participating in the LDA option and should be used as guidance when appropriate.

Students should participate independently to the maximum extent possible. Students should use the accessibility features deemed necessary to provide access to the LDA items in a manner that is congruent with use in classroom and other testing experiences.

? What accessibility features are used by the student during instruction and other assessment experiences?

Accessibility features that may be relevant to participating in the science LDA include:

- Human reader (see page 17 of guidelines... document)
- Alternate response options (inclusive of keyboarding as well as adapted keyboards, etc. page 24 of the guidelines document)
- Scribe (see pages 27 and appendix E)

Science LDA Materials

Each scenario has materials for both the teacher administering the LDA and the student. The “Teacher Pages” for each scenario are presented in one document. The student documents are broken up by question as each student may choose to answer only one or two questions for each scenario.

The documents are all posted to the OSPI Science LDA website\(^1\) and the applicable documents can be downloaded as PDF files.

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\(^1\) Science LDA website: [http://www.k12.wa.us/assessment/GraduationAlternatives/LDA.aspx](http://www.k12.wa.us/assessment/GraduationAlternatives/LDA.aspx)
The "Teacher Pages" documents for each scenario include:

- an overview of the scenario,
- the strands addressed by each question (e.g., SYS, LS3),
- science vocabulary used in the scenario,
- any materials needed for the scenario or questions,
- all student prompts,
- teacher directions for each question,
- scoring guides for each question,
- supplementary activities to enhance student understanding.

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**Teacher Pages**

**Baking Bread, a High School Inquiry LDA**

The Baking Bread scenario is inclusive of three items that address the following science EALRs: EALR 1: Systems, EALR 2: Inquiry, and EALR 4: Life Science, LS1. Teachers may select one or all of the items in the Baking Bread scenario for the student to respond to.

**Baking Bread Cell Inputs and Outputs**

- EALR 1: Systems and EALR 4: Life Science, LS1
- Baking Bread Cell Structures and Functions**

<table>
<thead>
<tr>
<th>Task</th>
<th>Q</th>
<th>Sys</th>
<th>Inq</th>
<th>App</th>
<th>LS1</th>
<th>LS2</th>
<th>LS3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baking Bread</td>
<td>1</td>
<td>SYS</td>
<td></td>
<td></td>
<td>LS1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>SYS</td>
<td></td>
<td></td>
<td>LS1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
<td>INQ</td>
<td></td>
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</tr>
</tbody>
</table>

The choice of selecting yeast with the possibility of baking bread is intentionally concrete and actionable in a school environment. Students are welcome to access text and internet resources (with appropriate accommodations) in order to respond to the prompts on this LDA scenario. Students and teachers are welcome to conduct a baking bread investigation while writing the procedure.

**Classroom Activity**

Teachers are encouraged to demonstrate the activity of yeast by following a basic bread recipe in order to build student background knowledge for these items. Completing the experiment is not a requirement for this task, but students may derive a benefit from doing so.

**Science vocabulary that may require pre-teaching**

- Celsius
- Cell
- Cell membrane
- Controlled experiment
- Grams (g)
- Inputs
- Mitochondrion
- Milliliters (mL)
- Nucleus
- Outputs
- Thermometer
- Yeast

**Materials**

- Required: cell diagram (available in district-provided resources or online)
- Optional: Yeast, water, sugar, cans, thermometer, cups, measuring cup or graduated cylinder

**Cell Structures and Functions Question**

Provide students with a simplified cell diagram. Read the item that matches the student packet.

**Look at a cell diagram. Describe the roles of the cell membrane, mitochondrion, and nucleus in the cell.**

In your description, be sure to:
- Identify cellular membrane, mitochondrion, and nucleus
- Describe what these three parts do for the cell to live.

**Cell membrane:**

**Mitochondrion:**

**Nucleus:**
The final pages of the teacher documents contain scoring guides for each item. The scoring guides are intended to provide the educator administering the Science LDA guidance on evaluating the student’s responses. If the student responses are in line with the criteria on the scoring guide, then the educator can confirm that the student completed the LDA item and mark the addressed standards in the rubric.

The sample scoring guide for Baking Bread 1: Cell Inputs/Outputs is shown below.

### Student Pages

The student documents for each scenario include:

- the scenario
- each item (presented on a separate document)

There is no required format for student responses. Therefore a student can print and draw his/her responses on the question pages, type the responses on a separate document, or, if through an applicable accessibility feature, respond verbally to a scribe.

### Timeframe

For students graduating in the Spring, the science LDA should be completed and the appropriate documentation submitted to OSPI when the work is completed to expedite the approval process. *Instructions for submission are later in this document.* OSPI recommends the end of **May 30** as a ‘no later than’ submission date.
Fulfilling the Science LDA Requirements

Students must address each science strand presented in the table below at least once. This can be done through a combination of items within and across scenarios. An example of how the requirements can be met is below:

<table>
<thead>
<tr>
<th>Scenario/Question</th>
<th>Crosscutting Strands</th>
<th>Life Science Big Ideas (EALR 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SYS</td>
<td>INQ</td>
</tr>
<tr>
<td></td>
<td>Systems</td>
<td>Inquiry</td>
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<td>APP</td>
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<td></td>
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<td>LS1</td>
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<td>Processes within Cells</td>
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<td>LS2</td>
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<td>LS3</td>
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<tr>
<td></td>
<td></td>
<td>Mechanisms of Evolution</td>
</tr>
<tr>
<td>Baking Bread Q1</td>
<td>SYS</td>
<td></td>
</tr>
<tr>
<td>Cell Input/output</td>
<td></td>
<td>LS1</td>
</tr>
<tr>
<td>Baking Bread Q3</td>
<td>INQ</td>
<td></td>
</tr>
<tr>
<td>New Controlled</td>
<td></td>
<td>LS3</td>
</tr>
<tr>
<td>Berry Search Q1</td>
<td>INQ</td>
<td></td>
</tr>
<tr>
<td>Reason/Conclusion</td>
<td></td>
<td>LS2</td>
</tr>
<tr>
<td>Wheat Field Q1</td>
<td>APP</td>
<td></td>
</tr>
<tr>
<td>Traits in Environment</td>
<td></td>
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</tr>
</tbody>
</table>

The table above depicts a student who completed the LDA by answering four questions from three different scenarios. Three of the questions addressed two strands and one question addressed one strand. There are many combinations of questions that will meet the requirements. Teachers and students are encouraged to review the scenarios to find the questions that will be of greatest interest and relevance to the student based on her/his coursework.

Documenting and Submitting the LDA

Once a student completes the necessary components to fulfill the requirements for the Science LDA, there are two steps for documenting the student’s work, one which is locally retained and the other which is submitted to OSPI.

Locally Retained Documents

Copies of all student responses as well as the completed rubric must be kept as a digital file on site for two years after the student has graduated. This allows for OSPI to request the student work at a later date for review or development activities. Please do the following:

1) Create a digital copies of the student’s responses by scanning or saving the student’s work for each question.
2) Save both the student work and the LDA application form in a digital file or folder to be kept by school submitting the LDA.
   a. Please name the digital file with district_school_student last_student first initial (ex: ScienceLDA2015_Seattle_Garfield_Siegel_L).

Documents Submitted to OSPI

On behalf of the student, the district will submit the Science LDA rubric documenting the scenarios and items the student used to meet the requirements as well as a signature page attesting that the directions were followed with fidelity and the submission should be counted towards meeting the science assessment requirement.

Procedures for Submitting Documents to OSPI

1. The teacher completes the Science LDA rubric documenting that the student met the requirements as outlined in the directions for administration and the Teacher Pages for each scenario.
   a. The Science LDA rubric is located on the second page of the LDA submission form.

2. The teacher attests and signs the LDA application and works with the appropriate school/district staff to submit relevant documentation (rubric and signature page) via the Graduation Alternatives application in EDS.

3. The teacher makes copies of the LDA application (inclusive of rubric) and all student work for electronic storage on site.

4. The District Special Education Director and District Assessment Coordinator approve the LDA form in the Graduation Alternatives application.