

9-12 SCIENCE

PERFORMANCE TASK

STUDENT INSTRUCTIONS



TASK TITLE

Tissue Issues

INTRODUCTION

Why are tissues so important? What diseases may happen if a tissue is not functioning properly?

You will work in groups to complete a case study about celiac disease. As a group you will pick a disease of the human body involving tissue damage and research the disease in terms of symptoms and how the healthy tissue is affected. After researching, you will plan an investigation to determine if a patient has the disease based on tissue samples.

SCORING CRITERIA¹

PERFORMANCE INDICATOR	BEGINNING	DEVELOPING	PROFICIENT	EXPANDING
<p>#3 Life Sciences- Structure, Function, and Information Processing: B</p> <p>Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.</p>	<p>Identify the components of the model.</p> <p>Identify systems in multicellular organisms.</p>	<p>Describe the relationships between components of the model.</p> <p>Explain the function(s) of the systems in multicellular organisms.</p>	<p>Develop and use a model to explain the relationship among its components.</p> <p>Illustrate how the hierarchical organization of systems interact to provide specific functions in multicellular organisms.</p>	<p>Distinguish between the accuracy of the model and the actual body system/function it represents by identifying limitations of the model.</p>
<p>#3 Life Sciences- Structure, Function, and</p>	<p>Plan an investigation to collect data about how</p>	<p>Plan and conduct an investigation to collect data that</p>	<p>Plan and conduct an investigation that identifies and measures internal</p>	<p>Plan another investigation that identifies and measures internal and external environmental conditions to collect evidence of</p>



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<p>Information Processing: C</p> <p>Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.</p>	<p>feedback mechanisms maintain homeostasis.</p>	<p>demonstrates that feedback mechanisms maintain homeostasis.</p>	<p>and external environmental conditions and explain why the evidence demonstrates that feedback maintains homeostasis.</p>	<p>how feedback maintains homeostasis in a different living system in a real-world scenario.</p>
<p>Communication: 3</p> <p>Choose and apply an appropriate communication strategy according to audience and purpose.</p>	<p>Identify audience and purpose of communication .</p> <p>Use a method of communication (e.g., written, oral, visual, graphic, audio, and/or interactive) to present ideas.</p>	<p>Use some appropriate aspects of style, tone and language to partially address the needs of the audience and purpose.</p> <p>Select and use a method of communication (e.g., written, oral, visual, graphic, audio, and/or interactive) to present ideas.</p>	<p>Use appropriate style, tone, and language to address intended audience and purpose.</p> <p>Select and use a method of communication (e.g., written, oral, visual, graphic, audio, and/or interactive) that fits the audience and purpose.</p>	<p>Use strategic, engaging, and creative style, tone, and language to effectively address the intended audience and purpose.</p> <p>Select and use a strategic method of communication (e.g., written, oral, visual, graphic, audio, and/or interactive) that effectively addresses the audience and purpose.</p>
<p>Research: 1</p> <p>Analyze the relevance, bias, and usefulness of information.</p>	<p>Locate information that pertains to the topic researched.</p>	<p>Select and categorize information according to relevance and usefulness.</p>	<p>Analyze information and sources to determine the relevance, bias and usefulness of information.</p>	<p>Seek out additional information to ensure a comprehensive representation of the topic.</p>

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¹ After administering the task to students, the design team decided to delete the Performance Indicator C and the associated Scoring Criteria as a requirement for the task.

STUDENT DIRECTIONS AND MATERIALS

TASK DIRECTIONS²

You will work in groups to complete a case study about celiac disease. As a group you will pick a disease of the human body involving tissue damage and research the disease in terms of symptoms and how the healthy tissue is affected. After researching, you will plan an investigation to determine if a patient has the disease based on tissue samples.

Part 1: Case Study

1. Get into groups and read the case study.
2. Fill out the graphic organizer individually as you read.
3. Refer to the Celiac Disease Resources to help answer the questions.
4. Discuss as a group.
5. Each group will share out their answers and we will discuss them as a class.

Part 2: Research

1. Choose from the list of diseases. Each group will research a different disease.
2. Fill out the graphic organizer for the research.
 - a. Each student should look up research from a different website. Use the CRAAP test to choose appropriate websites.
 - b. Don't forget to cite your sources.

Part 3: Planning the Investigation

1. Write a procedure that could be followed in order to determine, from tissue samples, if a sick patient has your disease.
2. List materials and safety concerns.
3. List data that would need to be collected.
4. Explain how the data would be analyzed to determine if the patient has your disease.

Part 4: Making a Model

1. Make labeled diagrams of healthy tissue vs tissue damaged from your disease as part of your model.
2. Identify a feedback loop in your disease. Add the feedback loop of the healthy tissue and the feedback loop

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- of the damaged tissue to your diagram.
- Find actual visuals of healthy vs damaged tissue.

Part 5: Presentation

- Brainstorm with your group different ways to present your information and choose the best way to present your information. (i.e. Google Slides, Prezi, Tri-fold Pamphlet, Poster, etc.)
- Assign roles and responsibilities within your group.
- You will have one week outside of class to complete this. Make sure to practice your presentation as a group and check the checklist.
 - Presentation Date: _____

2 The design team made the following modifications to task directions based on their experience administering the task to students:

- Introductory Paragraph:** You will work in groups to complete a case study about celiac disease. As a group you will pick a disease of the human body involving tissue damage and **research** the disease in terms of symptoms and how the healthy tissue is affected. You will **create a model** of healthy vs. diseased tissue and a homeostatic feedback loop involved with your chosen disease. After researching, you will create a product to **present** to the class.
- Part 2: Research:** Choose from the list of diseases. Each group will research a different disease.
 - Fill out the graphic organizer for the research.
 - Each student should look up research from a different website. Fill out the CRAAP test to choose appropriate websites.
 - Don't forget to cite your sources in MLA format.
- Part 3: Planning the Investigation:** This portion of the directions was deleted by the team. As a result of this, **Part 4: Making a Model** becomes Part 3 and **Part 5: Presentation** becomes Part 4.

MATERIALS ³

- [Case Study w/ graphic organizer](#)
- Celiac Disease Links:
 - [What is celiac disease](#)
 - [Celiac disease symptoms](#)
 - [Celiac Disease Foundation](#)
- [List of tissue diseases](#)
- Notes on tissues to use as reference
- Computers for research

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- [Graphic organizers for research](#)
- [Online textbook](#)
- [CRAAP test sheet](#)
- [Lab Format Graphic Organizer](#)
- [Presentation Checklist](#)
- Reflection Survey

³The original link to the CRAAP test sheet is no longer active. As a replacement, please follow one of these links:

- <https://www.utwente.nl/en/lisa/library/miscellaneous/docs-ad/craap.pdf>
- <http://southcentral.edu/webdocs/library/CRAAP%20Test%20Worksheet.pdf>

Also, the design team decided to eliminate the use of the Lab Format Graphic Organizer.

NOTE

CHECKLIST⁴

Your presentation must include:

- List of materials and safety concerns
- Procedure
- Data and Analysis
- Drawn model(s) of healthy and damaged tissue including feedback loops & actual pictures of tissue samples
- Explanation of model and feedback loop
- Which body system(s) does the disease affect?
- Hand in research graphic organizers from all group members.
- Cite sources in MLA format (minimum of three sources).

⁴The team modified the Checklist above to mirror that of the Presentation Checklist document hyperlinked in the Materials section.

Your presentation must include:

- Drawn and labeled model(s) of healthy and damaged tissue & actual pictures of tissue samples
- Feedback loops with explanation

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- Body Systems affected by the disease
- Signs and symptoms of the disease
- Procedures for diagnosing the disease
- Hand in research graphic organizers and CRAAP tests from all group members.
- Cite sources in MLA format (minimum of three sources)

STUDENT REFLECTION AND/OR GOAL SETTING⁵

Please fill out the reflection survey once your task is complete.

- ⁵ A new student reflection piece was created by the team:
1. How effectively did you work with your group members?
 2. What went well or was the easiest part about this assignment?
 3. What didn't go well or was the hardest part about this assignment?
 4. What part of this assignment would you change? Why?