

INTERNET RESOURCES (Teacher Reference)

Internet Resources

Ministry of Education:

Ministry of Education (2004). *Think Literacy: Subject-Specific Documents, Computer Studies, Grades 7–9.*

(Website evaluation, supports and citing sources, pp. 5–8)

Ministry of Education (2005). *Think Literacy: Subject-Specific Documents, Library Research, Grades 7–12.*

(Planning research, evaluating and citing sources, pp. 18–23)

Ministry of Education (2004–2005). *Think Literacy: Subject-Specific Documents, Science and Technology, Grades 7–8 and Science, Grade 9 Applied.* (Tips for reading different text forms, pp. 23–49)

Ministry of Education (2005). *Think Literacy: Subject-Specific Documents, Science, Grades 9–10, Oral Communication.* (Place Mat, pp. 8–11)

See *Think Literacy Library*: www.edu.gov.on.ca/eng/studentssuccess/thinkliteracy/library.html for all Subject-Specific Documents.

Video: www.diabeticconnect.com/videos/363

Disease and abnormalities:

www.heartandstroke.ca (Hypertension, stroke)

www.lungassociation.ca (Tuberculosis)

www.bloodservices.ca (Hepatitis)

www.cancer.ca (Leukemia)

www.who.int (World Health Organization)

www.omafa.gov.on.ca (Ministry of Agriculture, Food and Rural Affairs)

www.fao.org (Food and Agriculture Organization of the United Nations)

www.ars.usda.gov (US Government Agriculture Research)

www.ag.ndsu.edu (North Dakota State University)



SUGGESTIONS FOR GRADE 10 SCIENCE, APPLIED (SNC2P) BIOLOGY (Teacher Reference)

Researching Health Problems

This Grade 10 Science, Academic (SNC2D) Biology: Researching Diseases or Abnormalities Teaching/Learning Example can be adapted for Grade 10 Science, Applied (SNC2P) Biology. Students in Grade 10 Applied Science research and present information on health problems in the Biology: Tissues, Organs and Systems strand. This Teaching/Learning Example would meet the following expectations:

Overall Expectations:

- B2. Investigate cell division, cell specialization, and the organization of systems in animals, including humans, using various laboratory techniques
- B3. Demonstrate an understanding of the hierarchical organization of cells, from tissues, to organs, to systems in animals, including humans

Specific Expectations:

- B2.6 Use scientific investigation skills to research health problems related to tissues, organs, or systems in humans and communicate their findings
- B3.3 Explain cell organization by describing the link between cells, tissues, organs, and systems in the human body

To differentiate during the research process, consider the prior experience that students have had with the four broad areas of scientific investigation skills (see Materials and Resources in the Folder).

Based on knowledge of student readiness through observation and assessment, adjust the:

- Degree of support (e.g., guidance and assistance during the process)
- Level of independence (e.g., frequency of checkpoints/conferences)
- Type of text (e.g., audio, visual, graphic)
- Complexity of text (e.g., reading level)
- Amount of structure (e.g., open-ended or detailed note-taking organizer)

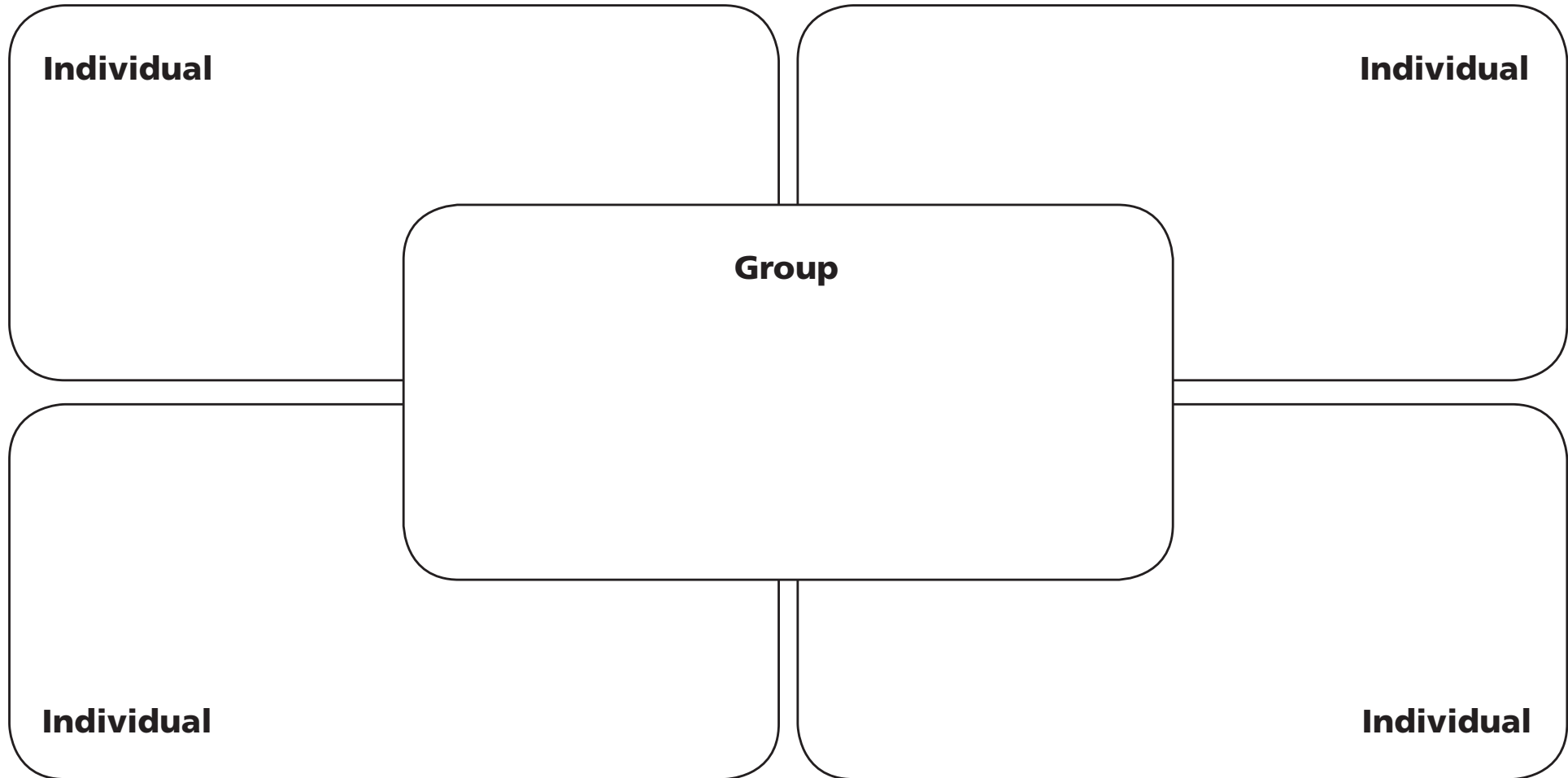
The Diseases and Abnormalities RAFT Research Assignment below has been adapted to align with the curriculum expectations for Grade 10 Applied Science, Biology.

Grade 10 Science, Applied (SNC2P) Biology: Diseases and Abnormalities RAFT Research Assignment

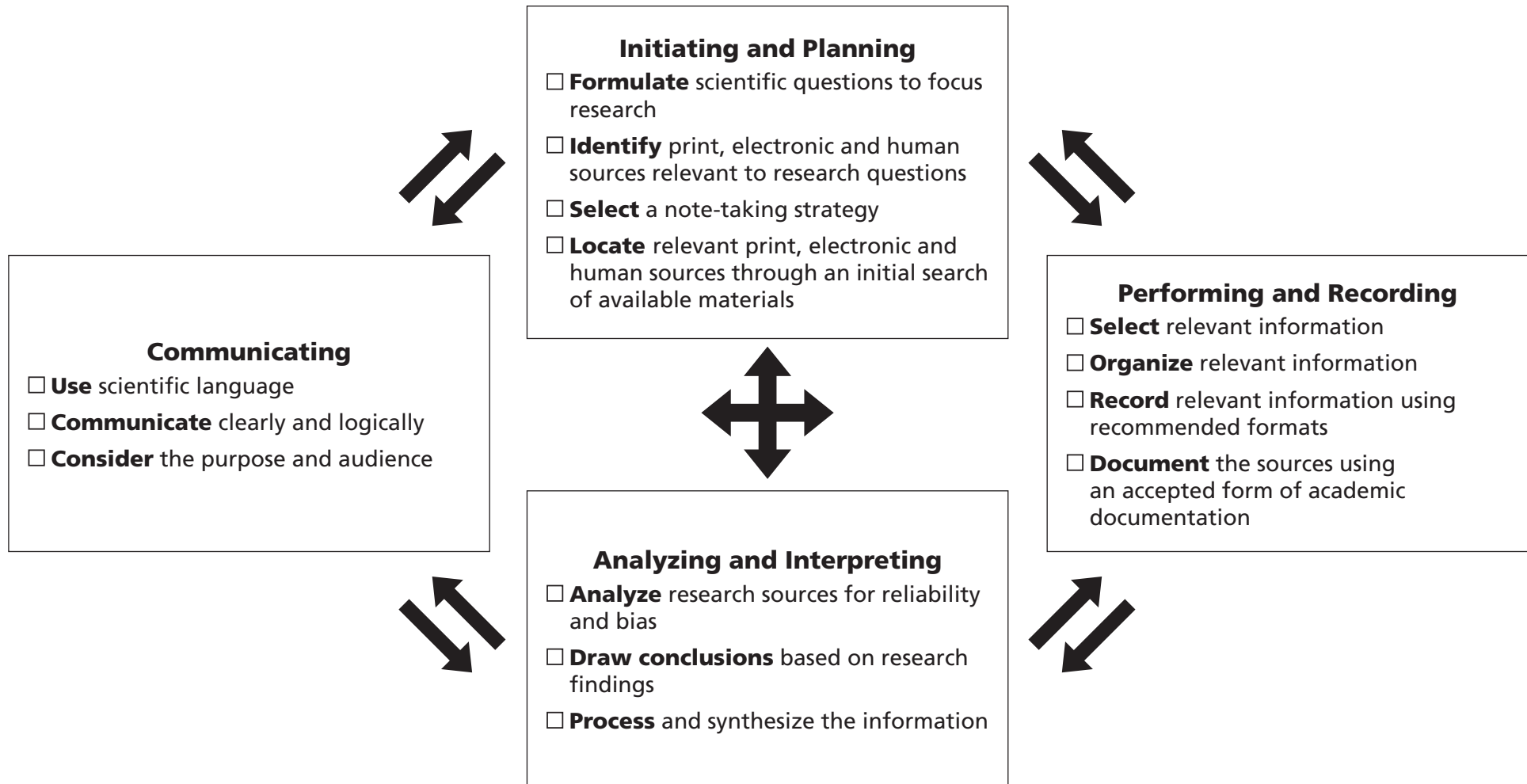
| ROLE | AUDIENCE | FORMAT | TOPIC |
|--------------------------------------|---|---|------------------------|
| Healthcare worker | General public | Oral presentation supported by visuals or presentation software Storyboard or poster | Stroke or hypertension |
| Wellness counsellor | Adults who have the disease | | Hemophilia or Leukemia |
| Someone who has the disease | Child who has the disease | Magazine article or brochure Series of diary entries/e-mails | Hepatitis A or B |
| Someone who has survived the disease | Friend or family member who has the disease | | Colitis |



PLACE MAT—STEPS TO FINDING OUT INFORMATION



RESEARCH PROCESS CHECKLIST



*Adapted from *The Ontario Curriculum, Grades 9 and 10, Science, Skills of Scientific Investigation p. 20.*



CRITERIA FOR EVALUATING SOURCES FOR RELIABILITY AND BIAS

Name: _____

| Criteria | | Source 1—Name: _____ | Source 2—Name: _____ | Source 3—Name: _____ | Source 4—Name: _____ |
|--------------------------------|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| S | How is the source <u>sponsored</u> ? | | | | |
| O | Does it contain/indicate <u>opinions</u> and/or facts? | | | | |
| U | Is there an <u>underlying</u> bias? | | | | |
| R | How <u>reputable</u> is the source and/or organization? | | | | |
| C | How <u>current</u> is the source? | | | | |
| E | Is the author a known <u>expert</u> ? | | | | |
| Reliable and bias-free? | | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes |



DISEASES AND ABNORMALITIES RAFT RESEARCH ASSIGNMENT RUBRIC

| Category/Criteria | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|--|--|--|
| Knowledge and Understanding | The student: | | | |
| Explains connections between the disease or abnormality and cells, tissues, organs, and systems Uses scientific terminology | Makes connections with limited depth Uses scientific terminology with limited accuracy | Makes connections with some depth Uses scientific terminology with some accuracy | Makes connections with considerable depth Uses scientific terminology with considerable accuracy | Makes connections with a high degree of depth Uses scientific terminology with a high degree of accuracy |
| Thinking and Investigation | The student: | | | |
| Research Process Analyses sources of information for reliability and bias Selects information relevant to the research questions Documents sources using an acceptable form of academic documentation | Provides a limited analysis Selects information of limited relevance Documents sources with limited accuracy | Provides some analysis Selects information of some relevance Documents sources with some accuracy | Provides considerable analysis Selects information of considerable relevance Documents sources with considerable accuracy | Provides a thorough analysis Selects information of a high degree of relevance Documents sources with a high degree of accuracy |
| Communication | The student: | | | |
| Communicates the researched information: <input type="checkbox"/> Clearly <input type="checkbox"/> In an organized manner <input type="checkbox"/> Appropriate for the intended audience | Communicates with limited clarity Presents information with limited organization Communicates with limited appropriateness to the intended audience | Communicates with some clarity Presents information with some organization Communicates with some appropriateness to the intended audience | Communicates with considerable clarity Presents information with considerable organization Communicates with considerable appropriateness to the intended audience | Communicates with a high degree of clarity Presents information with a high degree of organization Communicates with a high degree of appropriateness to the intended audience |

A rubric is an assessment tool used in assessment **for** and **of** learning. Before beginning to work on a task, students should be engaged in co-constructing the criteria to ensure that they know what success “looks like.” The rubric can be used to guide assessment **for** learning throughout the process. When the purpose is assessment **of** learning (evaluation), the rubric provides the basis for decision making about the student’s level of achievement using the agreed-upon criteria.



DISEASES AND ABNORMALITIES RAFT RESEARCH ASSIGNMENT



Name: _____

Instructions

1. Choose options from each column in the RAFT below. Consider your interests, learning preferences and strengths as you select.
2. Research your topic based on the following questions:
 - a) What is the disease or abnormality and how does it affect the cells, tissues, organs, and/or systems of sick person or plant?
 - b) What are its causes and symptoms and how do they affect cells, tissues, organs, and/or systems?
 - c) Question of your choice: _____
3. Check your research sources for reliability. Select reliable sources of information. Document each source.
4. Follow the steps in the research process: initiating and planning, performing and recording, analyzing and interpreting, and communicating.
5. Refine and present the results of your research based on your selected Role, Audience, Format, and Topic.
6. Consider the criteria in the Diseases and Abnormalities RAFT Research Assignment Rubric (Appendix E) as you complete the RAFT assignment.

DISEASES AND ABNORMALITIES RAFT

| ROLE | AUDIENCE | FORMAT | TOPIC—Choose one from A or B |
|--|--|--|---|
| Healthcare worker | General public | Presentation software (slides) | A. Human Disease/Abnormality: Stroke, hypertension, colitis, asthma, hemophilia, leukemia, tuberculosis, hepatitis, or your choice with teacher approval |
| Someone who has the disease | Friend or family of the diagnosed person | Journal entry or e-mail | |
| Garden centre expert or horticulturist | Avid gardener(s) | Short magazine article or flyer | B. Plant Disease/Abnormality: Wheat rust, apple scab, potato blight, tomato stem necrosis, or a flower disease of your choice with teacher approval |
| Crop expert or agricultural researcher | Farmer(s) | Oral presentation—audio or video recording | |



RESEARCH NOTE-TAKING ORGANIZER

Name: _____

| | Research Question 1 | Research Question 2 | Research Question 3 |
|--|--|---|--|
| | What is the disease/abnormality and how does it affect cells, tissues, organs, and/or systems of the sick person or plant? | What are the causes and symptoms of the disease/abnormality and how are they related to cells, tissues, organs, and/or systems? | (own choice) Note: Make sure that the answer to the question has a connection to cells, tissues, organs, and/or systems. |
| Notes: (Indicate your source by its number below.) | | | |
| Sources with Documentation: | 1. 2. 3. 4. | | |



**DISEASES AND ABNORMALITIES RAFT RESEARCH ASSIGNMENT: SELF AND PEER
ASSESSMENT RATING SCALE**

Name: _____ Peer Signature: _____

Check the appropriate location on the line continuum for each of the following statements:

| Statement | Rating |
|---|---|
| 1. The information answers the three research questions: Question 1: Question 2: Question 3: | Incomplete ◀.....▶ Complete Incomplete ◀.....▶ Complete Incomplete ◀.....▶ Complete |
| 2. The information is connected to cells, tissues, organs, and systems: | Not connected ◀.....▶ Thoroughly connected |
| 3. The product contains scientific language: | Rarely used accurately ◀.....▶ Always used accurately |
| 4. The information sources were checked for reliability: | Little evidence ◀.....▶ Much evidence |
| 5. The information sources are documented accurately: | Rarely ◀.....▶ Always |
| 6. The product is easy to follow (clear and organized): | In very few places ◀.....▶ Throughout |
| 7. Strategies are used to appeal to the particular audience: | With little effectiveness ◀.....▶ With much effectiveness |

Two suggestions for improvement are:

- 1.
- 2.

