

<b>Grade:</b> 11-12	<b>Subject:</b> Health Science 20, Biology 30, ELA 20, ELA B30	<b>Units:</b> Career Exploration, Healthcare Philosophies and Ethics, Student-Directed Study, Compose and Create Strand
<p><b>Rationale: Students will look critically at the role of animal testing in science and society.</b></p>		
<p><b>Background Information:</b></p> <p>This resource has the potential to be a cross-curricular activity with a variety of assessment options. The topic of ethics as it relates to animal testing not only has scientific implications (Health Science 20 and Biology 30), but societal as well (ELA 20 and B30).</p> <p>Animal testing and the ethics involved is paramount when it comes to conducting research, particularly research with potential human application. For example, research that is being done at the <a href="#">Phenix Research Lab</a>, at the University of Saskatchewan (U of S) Chemistry Department, is focused on developing new ways to diagnose various health concerns related to biochemical metabolism that can be detected with PET (<a href="#">Positron Emission Tomography</a>). Research in this lab, and in numerous other labs, rely on the accessibility and opportunity to utilize small animals for testing.</p> <p>The Phenix group perform a multitude of experiments using recombinant protein and tissue culture designed to find good compounds and screen out bad compounds earlier, greatly limiting the number of rodents used for imaging experiments. In addition, animals are used repeatedly to limit the numbers required. Scientists at the U of S go to great lengths to ensure that the animals are not mistreated, do not feel pain or suffer, as well as monitor their general health and well-being during experiments and holding. Unfortunately, scientists have to use rodents for these experiments since no other models can be used to ensure the safety of humans when conducting first in-patient studies to evaluate new PET tracers.</p> <p>It is important to bring awareness to this issue and for students to develop informed opinions on the matter, as it will provide a knowledge base for them to be able to support/dispute such affairs as portrayed in the media.</p> <p>There will be a variety of links and resources provided to guide the students in their research. Two resources to note are the current <a href="#">University of Saskatchewan Animal Use Protocol - Research Application form</a> (under Ethics - Animal) and the Protocol for Review and Approval - <a href="#">How do I get Ethics Approval?</a></p>		

### Curriculum Connections:

- HS20-CE1f: Examine the role of self-regulating professional bodies (e.g., college, association society, board and council) in the healthcare field.
- HS20-HC2a: Pose questions about ethical dilemmas within health care.
- HS20-HC2c: Analyze a health care issue with respect to the core ethical questions.
- HS20-HC2g: Examine ethical considerations and perspectives related to issues such as the use of cadavers in professional studies, dissection and raising animals for the purpose of dissection, and public exhibits of plastinated organs and bodies, all of which could provide increased scientific understanding of human anatomy.
- HS20-HC2k: Debate a decision related to ethics in health care from the viewpoint of individuals who hold different belief systems.
- HS20-HC2e: Examine ethical considerations related to various practices and treatments that might be considered in Western, Indigenous, traditional, complementary and alternative approaches to health care.
- BI30-SDS1e: Debate an issued related to biology, including developing materials to support the arguments for and arguments against a position.
- ELA20-CC20.1: Create a range of visual, multimedia, oral, and written texts to explore: identity, social responsibility, social action (agency)
- ELA30-CCB30.1: Create a range of visual, multimedia, oral, and written texts to explore: identity, social responsibility, social action (agency)
- ELA30-CCB30.3: Create and defend an informed critical response to a global issue in formal (including a workshop presentation, a debate, and an oral reading of poetry or a prose passage related to the issue) and informal (including discussion and collaborative group work) situations.

### Lesson Objectives/Concepts:

- Students will be able to research an ethical issue and look critically at both sides.
- Students will discover viewpoints from various philosophies of health care [Western, Indigenous, Traditional, complementary and alternative approach (Ex. Ayurveda)]
- Students will be able to formulate informed decisions on an issue.
- Students will be able to defend a position (orally in a debate followed by an individual summary; or written in a dialectic essay)
- Students will be able to participate in an organized debate (if this option is chosen)

**Materials:** Internet access for research, student handouts, debate template, assessment rubrics and checklist

**Time:** Approx. 1 ½ hr

### Introduction (5 minutes):

1. Start by asking why animal testing is an ethical issue.
2. Take some time to discuss the perspectives of animal use from the various health care philosophies.
  - a. Western medicine: [Animal models](#) are widely used in biomedical research because experimental interventions on animals are easier to conduct and cheaper than experiments on humans. Both kinds of experiments involve ethical dilemmas, but animal experimentation is usually regarded as less problematic from an ethical point of view than experimentation with humans.

- b. Indigenous: Many [Indigenous Peoples believe](#) that “the Animal People have spirits and enter the human world to give their bodies to supply men with food, fur and other materials. After their flesh is used the animals return home, put on new flesh and re-enter the human world whenever they choose.”
  - c. Traditional/Chinese: Traditionally, the success of [TCM treatment](#) is measured through observation and how the patient feels. As Traditional Chinese Medicine moves into the Western paradigm, there has been a recent push for testing on animals prior to human use.
  - d. Complementary and alternative approach (ex. Ayurveda): The question of [animal testing in ayurveda](#) can be seen as practically and ethically unnecessary.<sup>1</sup>
3. Proceed to explain which activity and products they will be completing. Here are some options:
    - a. Debate followed by an individual summary.
    - b. Debate followed by a dialectic essay.
    - c. Dialectic Essay.
  4. Give them the assessment rubric(s) or checklist that pertain to the activity chosen.

#### **Activities/Procedure (about 60 minutes):**

##### **DEBATE**

1. If you are conducting a class debate, you should hand out the **Debate handout**.
2. Determine if you will be assessing the debate itself (**see rubric**) and outline any rules you wish to follow (some rules are provided). Agree on one of the two options for debate format.
3. Break the students up into 3 groups: the Affirmative (4-6 students), Negative (4-6 students) and Judges (remaining students). Each group's tasks are outlined in the Debate handout.
4. Give students about 15-20 minutes to prepare for the debate. (**use template**)
5. At the beginning of the next class, conduct the debate. This will take about 30 minutes.

##### **DIALECTIC ESSAY**

1. Hand out the **essay planning template**. Allow students time to research the issue with the links and resources provided, as well as any others they find.
2. Complete the essay.

##### **Summary:**

Wrap up the debate and lead students into the assessment part. A winner can be declared, but does not have to be. Judges could outline strengths of each side and areas they could show improvement.

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<sup>1</sup> The links to these reference websites do not imply that the authors are the best, only, or most comprehensive interpretation of these worldviews. They are supplied for your interest only.

**Assessment (time will vary):**

- Following the debate, they can do a one-page summary (**see rubric**) that will outline the issue, points for, points against, and their opinion.
- They could also complete a dialectic essay as a follow-up (complete as a cross-curricular assignment and use both science class and English class) - **see checklist or rubric** for assessment.

**Extensions/Connections:**

As an extension, students could look at the Animal Use Protocol - Research Application form and fill it out in a hypothetical situation to further understand the process that is involved.

Students could explore the careers involved in the exploration, testing, and implementing PET scans. There is a webquest resource available on the [Glyconet website](#).

## EXPLORE AN ISSUE: THE ETHICS OF ANIMAL TESTING- STUDENT HANDOUT

### The Debate

A debate is a discussion about an issue or a resolution. In this activity, your resolution is:  
***“Should the use of animals for research purposes be allowed?”***

A formal debate involves two sides: one supporting the resolution (**the Affirmative**) and one opposing it (**the Negative**). There will also be a third group, **the Judges**. The role of the Judges will be outlined in more detail below, but one task is to ensure each member is abiding by the rules of the debate.

#### Structure of the Debate

##### Option 1:

- Affirmative opening speech ~5 minutes
- Negative opening speech ~5 minutes
- Class Discussion ~20 minutes
- [5 minute break]
- Closing remarks - Negative goes first ~3 minutes
- Closing remarks from Affirmative ~3 minutes

NOTE: a winner can be declared, but a better option would be for the Judges to point out the main strengths of both sides.

##### Option 2:

- Affirmative opening speech ~5 minutes
- Negative opening speech ~5 minutes
- Second speaker from Affirmative side (presents additional arguments in support, identifies areas of conflict, and answers any questions that may have been raised) ~5 minutes
- Second speaker from Negative side (presents additional arguments in support, identifies areas of conflict, and answers any questions that may have been raised) ~5 minutes
- [5 minute break to prepare rebuttals]
- Negative side’s rebuttal ~3 minutes
- Affirmative side’s rebuttal ~3 minutes
- Each team gets a second rebuttal opportunity, with Affirmative team have last opportunity to speak (~3 minutes each)

**RULES:** (these are guidelines; any rule can be discussed and implemented as a class)

1. Maintain respect at all times. Participants should attack the argument, not the person. Instead of “He/she said this” get the students to refer to the argument: “When considering the point...”
2. No interrupting; speakers must wait their turn.
3. Try not to repeat arguments as it will not strengthen your point - reword or discuss another perspective.

4. All members should participate.
5. Other: add rules as you see fit

### ***Debate Preparation:***

- Divide the class into 3 groups: (the Affirmative, the Negative, and the Judges)
- Using the template, research the topic and prepare arguments.
- Gather supporting evidence and examples for position assigned.
- Anticipate counter arguments and prepare rebuttals
- Team members plan order and content of speaking in the debate.
- Present information effectively and convincingly.
- Prepare room for the debate.
- Establish expectations for assessment of debate (ex. The debate itself, one-page written summary, dialectic essay; see rubrics)
- The Judges group will need to do the same research preparation as they need to ensure arguments used are reliable and accurate. During the debate they will also ensure all participants are obeying rules.

### ***Post-debate discussion and assessment:***

When the formal debate is finished, allow time for debriefing and discussion. All members of the Judges team should get the opportunity to ask questions and contribute their own thoughts and opinions. Members of the debate teams may also wish to reflect on their performance and seek feedback.

Whichever form of assessment was part of the debate plan, should be conducted at this time.

### ***Curricular Connections:***

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- HS20-HC2g: Examine ethical considerations and perspectives related to issues such as the use of cadavers in professional studies, dissection and raising animals for the purpose of dissection, and public exhibits of plastinated organs and bodies, all of which could provide increased scientific understanding of human anatomy.
- HS20-HC2k: Debate a decision related to ethics in health care from the viewpoint of individuals who hold different belief systems.
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## Debate Template

Use the following resources to help you look critically at the Resolution:

- [Care and Use of Animals in Research](#)- University of Saskatchewan
- [The Ethics of Animal Research](#)
- [Controversy of Animal Testing](#)
- [Using Animals for Testing: Pros versus Cons](#)
- [10 Pros and Cons of Animal Experimentation](#)
- [Should Animals be used in Research](#)

Find 5 main points, with qualifiers and their source, that support your side of the debate:

**Point 1:**

Source:

Qualifiers:

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**Point 2:**

Source:

Qualifiers:

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**Point 3:**

Source:

Qualifiers:

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**Point 4:**

Source:

Qualifiers:

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**Point 5:**

Source:

Qualifiers:

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Make a list of possible points the other side may raise and how you will defend against them.

1.

Defend:

2.

Defend:

3.

Defend:

4.

Defend:

5.

Defend:

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***Plan your Speakers:***

Opening Speech: \_\_\_\_\_

2nd Speech (Option 2): \_\_\_\_\_

Closing Speech/First Rebuttal: \_\_\_\_\_

Second Rebuttal (Option 2): \_\_\_\_\_

## Debate Summary Assessment

Using the following rubric, complete a one-page summary of the Resolution: “*Should the use of animals for research purposes be allowed?*” Ensure that you discuss:

1. Points for.
2. Points against.
3. Your opinion and defend.

<b>Category</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>Accuracy</b>	All supportive facts and information is reported accurately.	Almost all supportive facts and information is reported accurately.	Most supportive facts and information is reported accurately.	Most supportive facts and information were inaccurately reported.
<b>Amount of Information</b>	All topics (see above) are addressed thoroughly with about 4-5 sentences about each.	All topics (see above) are addressed with about 3-4 sentences about each.	Most topics (see above) are addressed with about 3-4 sentences about each.	Only some topics were addressed and there was very little support shown for the topics.
<b>Quality of Information</b>	Information clearly related to the main topic. It includes several supporting details.	Information clearly related to the main topic. It provides 1-2 supporting details.	Information clearly related to the main topic. No details are given.	Information has little or nothing to do with the main topic.
<b>Knowledge Gained</b>	Student accurately addressed all topics with accurate facts and appropriate vocabulary and terminology was used.	Student accurately addressed most topics, while using appropriate vocabulary and terminology.	Student accurately addressed most topics, but used 1-2 terms incorrectly.	Student accurately addressed some topics and showed several inaccuracies in terminology.
<b>Representation</b>	Written communication is well organized and effective.	Most of the written communication is well organized and effective.	Some of the written communication is organized and effective.	Written communication is lacking organization.

## Debate Rubric

<b>Category</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>Respect for Other Team</b>	All statements, body language, and responses were respectful and were in appropriate language.	Statements and responses were respectful and used appropriate language, but once or twice body language was not.	Most statements and responses were respectful and in appropriate language, but there was one disrespectful remark.	Statements, responses and/or body language were not consistently respectful.
<b>Information</b>	All information presented in the debate was clear, accurate and thorough.	Most information presented in the debate was clear, accurate and thorough.	Most information presented in the debate was clear and accurate, but was not always thorough.	Information had several inaccuracies OR was not always clear.
<b>Rebuttal</b>	All counter-arguments were accurate, relevant and strong.	Most counter-arguments were accurate, relevant and strong.	Most counter-arguments were accurate and relevant, but several were weak.	Counter-arguments were not accurate and/or relevant.
<b>Use of Facts/ Statistics</b>	Every major point was well supported with several relevant facts, statistics and/or examples.	Every major point was adequately supported with several relevant facts, statistics and/or examples.	Every major point was supported with facts, statistics and/or examples, but the relevance of some was questionable.	Every point was not supported.
<b>Organization</b>	All arguments were clearly tied to an idea and organized in a logical fashion.	Most arguments were clearly tied to an idea and organized in a logical fashion.	All arguments were clearly tied to an idea, but the organization was sometimes unclear or illogical.	Arguments were not clearly tied to an idea.
<b>Understanding of the Topic</b>	The student clearly understood the topic in-depth and presented their information forcefully and convincingly.	The student clearly understood the topic in-depth and presented their information with ease.	The student seemed to understand the main points of the topic and presented those with ease.	The student did not show an adequate understanding of the topic.

## EXPLORE AN ISSUE: THE ETHICS OF ANIMAL TESTING- STUDENT HANDOUT

### Dialectic Essay

#### Guidelines:

- For a 5-paragraph essay:
  - Introduction - states why it is an important issue; do not bring up any points for or against. **THESIS STATEMENT:** should reflect the resolution but reworded so that it is a statement.
  - Present 5 strong points for - (can be broken into 2 paragraphs if it gets too long)
  - Present 5 strong points against - (can be broken into 2 paragraphs)
  - Critique both sides - establish weaknesses of each side (do not simply state the opposite).
  - Conclusion - reflect and offer own views. Although this is a formal essay, first person narrative is acceptable.
- Refrain from using contractions, slang, clichés
- The reader should not be able to determine your personal views until the final paragraph.

#### Resource Options:

- [Care and Use of Animals in Research](#)- University of Saskatchewan
- [The Ethics of Animal Research](#)
- [Controversy of Animal Testing](#)
- [Using Animals for Testing: Pros versus Cons](#)
- [10 Pros and Cons of Animal Experimentation](#)
- [Should Animals be used in Research](#)

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- **ELA30-CCB30.1:** Create a range of visual, multimedia, oral, and written texts to explore: identity, social responsibility, social action (agency)

**Planning Template:**

<b>Topic:</b>
<b>Introductory Points:</b> (why is this an important issue?)
<b>Thesis Statement:</b>
<b>5 points for,</b> with qualifiers <ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li><li>•</li><li>•</li></ul>
<b>5 points against,</b> with qualifiers <ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li><li>•</li><li>•</li></ul>
<b>Critique/establish weaknesses</b> with each side <p style="text-align: center;"><u>FOR</u> <span style="margin-left: 200px;"><u>AGAINST</u></span></p>
<b>Conclusion:</b> (your opinion, perspectives, solutions, etc)
<b>Sources:</b>

**Dialectic Essay Checklist Assessment:**

1. Clearly identifies the issue (1 mark)
2. Determines 5 clear points for (5 marks)
3. Determines 5 clear points against (5 marks)
4. Clearly identifies weaknesses for both sides (5 marks)
5. Reflects and offers own views: refers to arguments, considers weaknesses, offers opinions, solutions, perspectives, etc. (6 marks)
6. Mechanics: spelling and grammar (3 marks)

Total:    /25    Additional Comments:

**Dialectic Essay Rubric:**

\*\*\*please choose any of the following criteria\*\*\*

<b>Category</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>Attention Grabber</b>	The introductory paragraph has a strong hook that is appropriate for the audience. This could be a strong statement, a relevant quotation, statistic, or a question for the reader.	The introductory paragraph has a hook or attention grabber, but it is weak, rambling, or inappropriate for the reader.	The author has an interesting introductory paragraph but the connection to the topic is unclear.	The introductory paragraph is not interesting and is not relevant to the topic.
<b>Thesis Statement</b>	The thesis statement names the topic of the essay and sets the tone for the remainder of the essay.	The thesis statement names the topic of the essay.	The thesis statement sets the tone for the essay but does not name the topic.	The thesis statement does not name the topic and does not set the tone for the essay.
<b>Points For Resolution</b>	Includes at least 5 pieces of evidence (facts, statistics, examples, real-life experiences) that support the resolution.	Includes 4 pieces of evidence (facts, statistics, examples, real-life experiences) that support the resolution.	Includes 3 pieces of evidence (facts, statistics, examples, real-life experiences) that support the resolution.	Includes less than 3 pieces of evidence (facts, statistics, examples, real-life experiences) that support the resolution.
<b>Points Against Resolution</b>	Includes at least 5 pieces of evidence (facts, statistics, examples, real-life experiences) that go against the resolution.	Includes 4 pieces of evidence (facts, statistics, examples, real-life experiences) that go against the resolution.	Includes 3 pieces of evidence (facts, statistics, examples, real-life experiences) that go against the resolution.	Includes less than 3 pieces of evidence (facts, statistics, examples, real-life experiences) that go against the resolution.
<b>Sequencing</b>	Arguments and support are provided in a logical order that makes it easy and interesting to follow the author's train of thought.	Arguments and support are provided in a fairly logical order that makes it reasonably easy to follow the author's train of thought.	A few of the support details or arguments are not in an expected or logical order, distracting the reader and making the essay confusing.	Many of the support details or arguments are not in an expected or logical order, which is distracting for the reader.
<b>Closing Paragraph</b>	The conclusion is strong and leaves the reader solidly understanding the writer's position.	The conclusion offers a clear understanding of the writer's position.	The conclusion offers an understanding of the writer's position but arguments are	There is a short conclusion that states the writer's position but it lacks defense and

	Effective reference to arguments is evident and solutions are offered.	Arguments are restated.	not referred to specifically and no solutions offered.	solutions.
<b>Sources</b>	All sources used for quotes, statistics, and facts are credible and cited correctly.	All sources used for quotes, statistics, and facts are credible and most are cited correctly.	Most sources used for quotes, statistics, and facts are credible and cited correctly.	Many sources are not credible and/or are not cited correctly.
<b>Grammar and Spelling</b>	Author makes no errors in grammar or spelling that distract the reader from the content.	Author makes 1-2 errors in grammar or spelling that distract the reader from the content.	Author makes 3-4 errors in grammar or spelling that distract the reader from the content.	Author makes more than 4 errors in grammar and spelling that distract the reader from the content.
<b>Capitalization and Punctuation</b>	Author makes no errors in capitalization or punctuation, so the essay is very easy to read.	Author makes 1-2 errors in capitalization or punctuation, but the essay is still easy to read.	Author makes a few errors in capitalization or punctuation, which interrupt the flow of the essay.	Author makes several errors in capitalization or punctuation, which interrupt the flow of the essay.