Category Requirements – 30%	
15 pts.	**Lesson Plan (5-8 pages, including handouts and worksheets) for a 40-50 minute Class Period** **Objectives** State at least 2 key concepts that students will learn from this lesson (e.g., DNA replicates semi-conservatively). Identify at least 3 skills that students will be able to do after completing this lesson (e.g., Students will be able to: Identify stages of early embryonic development; distinguish between 'adult' and 'embryonic' stem cells). **Introduction (1-2 short paragraphs)** Briefly describe the lesson and how it will help them learn about your chosen topic. Identify the prior knowledge needed and common misconceptions that students may have with regard to your topic. State the grade level, intended audience, and the amount of class time required to complete the lesson. **Materials** List the materials that other teachers would need to duplicate this lesson. **Procedure (2-3 pages)** Outline how the lesson will be conducted, step-by-step. This part should be numbered and important aspects and/or important vocabulary should be bolded. Also include time estimates. Feel free to break up into sections, for example: 1. How you are going to start out the lesson. (Bring up an analogy, ask guided question of students, etc.) 2. How you will conduct the activity (Model building, small group work, role-playing, lab activity, etc). 3. How you will lead the analysis and discussion of the material covered (group reflection of data collected, asking guiding questions of concepts learned, having students brainstorm ways in which this topic relates to their lives, etc.) **Assessment (1 paragraph)** Describe how you will check to see if your students understand what is going on throughout the lesson (worksheet, group discussion, etc). Identify how you will determine that your objectives were met (quiz, group discussion, reflective essay, etc.). **Extensions or possible resources (not more than 1/2 page)** Using bullet points, outline at least 2 ideas that others could use to enrich your lesson. This could include how to adapt your lesson for other levels (either a higher or lower grade), specific activities that would enrich the lesson or readings that would help students make connections to their own lives. Include annotated list of at least 2 resources that you think would be useful to other educators who might teach this lesson. **Reflection (1-2 paragraphs)** Reflect on your lesson planning strategies, and the process of developing and teaching a lesson Include a record of strong point of the lesson to be kept, and areas to further develop in the future **Handouts and Visuals/Illustrations used** A list of references on how to generate a Lesson Plan can be found on the Teaching Tips page
15 pts.	**Video/DVD** The video should be no longer than 10 minutes in length. A 5-8 minute "Lesson Highlights" video

	is encouraged. The videotape will be evaluated for clarity of communication with audience, evidence of lesson preparation, and audience engagement. An audience of at least 5 people must be present for the taping-session so that participation is evident. Please upload your video(s) to www.youtube.com <http://www.youtube.com/> according to the instructions at the end of the teaching category requirements.

Science Content– 30%	
30 pts.	**Science Content Understanding** The Lesson Plan (see "Category Requirements", above) should demonstrate a mastery of relevant scientific ideas by accurately explaining difficult concepts. It should show a clear, organized pattern of thinking and provide logical and analytical reasoning. The content of your work should reflect critical thinking about the topic.

Connections and Collaborations; General Written Requirements – 10%	
5 pts.	**Connections and Collaborations** I Include 1-2 typed pages describing the connections you have made with other people as well as the resources you have used the most. More weight is given in judging to those students who put more effort into locating and using available resources. A good use of resources may include working with an advisor or mentor, making arrangements to tour a company, interviewing an adult in your field, in addition to reading an important paper or uncovering an invaluable website. What did you learn? How did this resource help you? An interview with an adult in the field carries far more weight than a Google search. You do *not* have to request a mentor through NWABR to excel in this area. If a qualified adult (i.e. your Expo Mentor, someone you interviewed or a tour guide at site visit) significantly helped you with your project, please include: a) The person's name, title and contact information. b) Dates you emailed, talked on the phone or met. c) Your thoughtful reflections on the experience of working with that person
5 pts.	**Paper Format and Annotated Bibliography** Papers should be typed/word processed with one-inch margins. Use an easily readable font such as Times Roman or Arial, 10-12 point, double-spaced. If included, illustrations must be neat and applicable, with a title and a source. Number your pages and label section headings. Consistently follow the rules of Standard English for usage, spelling, capitalization, and punctuation. If you are using Windows *Vista* or *7*, please use the 'save as' function to save your paper as a "Word 97-2003 Document." Annotated bibliography should be in standard MLA or APA format. Use a minimum of 5 sources. The bibliography should include all books, papers, journal articles, and communications used in your research. For at least 5 sources, provide one reason why you believe the source is credible and describe how it was used in your project.

Creativity -- 10%	
10 pts.	**Creativity** Show your ability to creatively approach teaching your topic. Your plan should reflect your special insights and abilities to teach scientific content using engaging teaching strategies.

Poster/Interview at Expo Event – 20%	
10 pts.	**Poster** Posters should convey important information about your project in a visually appealing manner. Displays and models must be freestanding and have the following maximum dimensions: 4 feet width, 2.5 feet depth, and 3 feet height (from table).
10 pts.	**Interview/Presentation– 10%** *Judges will be looking at your effectiveness in communicating your project to them, and your understanding of your topic.* Your judge will want an overview of your project - practice giving a short (2-3-minute) 'walk-through' of your project that explains it in straightforward terms. You will receive written feedback from your judge regarding the strengths of your project, and how you could make it even better in the future. *The following are samples of the types of additional questions a judge might ask you:* Why were you interested in this topic? What did you learn from doing your project? What was the most enjoyable/difficult aspect of doing this project?
100 points total	

What you need to do on or before April 22, 2018

❑**Register** for the Student Bio Expo. Student registration will be open between April 2nd with a deadline of Sunday midnight Aril 22nd, 2018

❑**Submit** an electronic copy of your project to NWABR (and your teacher) using the **BOX cloud storage**. Further registration and submission information will be posted at: https://www.nwabr.org/events-programs/student-events/student-bio-expo

What you need to bring to the Expo

Bring a hard copy of your written work. Include the following:

- ❑ **Cover Sheet**
- ❑ **Lesson Plan and any handouts for your lesson**
- ❑ **Bibliography + Connections and Collaborations**
- ❑ **Poster**
- ❑ **A copy of your video or DVD**
- ❑ **Any electrical or AV equipment you may need**

YouTube Uploading Instructions

For the Teaching (TE) category, the judges will view your work on YouTube. You can upload your video at www.youtube.com <http://www.youtube.com/> using the following instructions:

1. The maximum video time on YouTube is 10 min. 59 seconds. Please edit your video down to one 10-minute "highlights" version.

2. On the main YouTube page, click "Sign In" on the upper right hand corner. Use the following log-in info.:
   Username: bioexpo2018@gmail.com
   Password: studentbioexpo2018 (Alternatively, use your own Gmail account to upload your video but make sure to label your video as described below.)

3. Upload your video:
   Once signed in:
   a. Click on the "upload" link at the top right.
   b. On the next screen, click the "upload video" link and select your video from your saved files.
   c. In the title section: Type the title of your project.
   d. In the description section type: "A teaching project for the 2018 Student Bio Expo by (your name)." Next type a brief description of your project topic.
   e. In the tag section type: "Student Bio Expo 2018, 'teaching', 'your topic' (eg. Autism, Down Syndrome, Thyroid Disorders etc.)
   f. Select an appropriate category from the drop-down menu.
   g. Under Broadcasting and Sharing Options, change the "comments" section to "Don't allow comments." Leave the other options as they are by default.
   h. When you are done uploading your videos, click "save changes".
4. Log out of YouTube and you are done!

Teaching Tips

If you are interested in teaching others about biotechnology or biomedicine, you may create a concept or technique based demonstration, or an inquiry-based lesson illustrating an application of biotechnology.

Videotaped lessons will be submitted for preview judging and will be available for viewing at the Student Biotech Expo. The presentations may be geared to students or other audiences. Your audience should have at least 5 people in it.

If you decide to modify a lesson that you find elsewhere, be sure that you credit your original source and do not plagiarize any written work.

Multiple Intelligences

Consider developing lessons that address different ways that students learn. Resources include:

http://www.thomasarmstrong.com/multiple_intelligences.htm
http://www.newhorizons.org/strategies/mi/front_mi.htm
http://www.infed.org/thinkers/gardner.htm

Science Teaching Resources

http://www.nabt.org
National Association of Biology Teachers

Annenberg-PBS Videos on Teaching and Learning

http://www.learner.org/resources/series28.html#
'Private Universe', a classic video about science concepts and misconceptions
Requires login, free

http://www.learner.org/resources/series29.html
'Private Universe Project' to examine science teaching, lots of videos on teaching science
Requires login, free

http://www.learner.org/channel/workshops/science/
The Science of Teaching Science Videos

Sample Lessons in Biotechnology/Biomedicine/Bioethics

http://www.csun.edu/~vceed002/biology/genetics/genetics.html
Access Excellence – lesson ideas

http://teach.genetics.utah.edu
Genetic Science Learning Center

http://www.nwabr.org/teachers/teacher-developed-curricula/ethics-classroom
Bioethics lessons from NWABR teachers

Student Bio Expo

Student Name:

Student School:

Project Title:

Teaching TE

Judging Criteria (Judging criteria are explained in the *Student Requirements*)	Superior	Excellent	Good	Developing	Limited
Teaching Category Req. (30%)					
Lesson Plan (15 pts)					
Videotape (15 pts)					
Science Content (30%)					
Science Content Understanding (30 pts)					
Connections/Written Req. (10%)					
Connections and Collaborations (5 pts)					
Paper Format; Annotated Bibliography (5 pts)					
Creativity (10%)					
Creativity (10 pts)					
Poster/Interview at Expo Event (20%)					
Poster (10 pts)					
Interview (10 pts)					

Comments

(Please continue on back, if needed)

What I found particularly impressive about your project:

Pre-Judging:

Final Judging:

What you could do in the future to make it better:

Overall Rating (circle one)

Superior **Excellent** **Good** **Developing** **Limited**