**Guidelines for Biology Cell Project**

# MAKING A TRAVEL BROCHURE TO VISIT A PLANT CELL

**NGSSS:**

**SC.912.L.14.3** Compare and contrast the general structures of plant and animal cells. Compare and contrast the general structures of prokaryotic and eukaryotic cells. **AA**

**SC.912.L.14.2** Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).

The purpose of this activity is to use the information you have gained in your study of the cell to create a travel brochure for a plant cell that will include all of the parts in the list below. Use your class notes, textbook or other references so that you will not make any errors. **Cell Biology Websites to help you in your research:**

<http://www.biology4kids.com/files/cell_main.html>

<http://www.cellsalive.com/cells/3dcell.htm>

**Directions:**

1. You will create a travel brochure of a Plant cell.
2. You will work alone to create your travel brochure.
3. You will turn this plant cell into an attraction that someone will want to visit. You must choose from the following list of attractions as your theme of your plant cell: Amusement park, Caribbean Island, European Castle or the Big Apple (NYC).
4. You must describe the structure and function of **all the cell structures on the list below** using creative analogies based on what the part or process would be at your attraction. **Don't simply state the cell organelle function**. *Example: While staying at our golf resort please remember to tip our Lysosome caddies generously. They are the best at clean turf off your golf shoes. They use special digestive enzyme cleaning agents to destroy any dirt or grime!*
5. You will produce a travel brochure to entice people to visit your cell attraction. You can use Microsoft Word template, or create your own trifold brochure.
6. You must include two pictures of every cell structure you use. One picture will be of the actual cell part and the other picture will be a representation of the analogy for the cell part as part of your attraction. Example: Using the golf resort example, you will have one picture of what a lysosome from a cell looks like and another picture of someone cleaning dirt off shoes using a cleaning agent or you can draw it yourself.
7. The front cover of the brochure should include the name of your cell attraction, a graphic that represents your attraction, and a phone number. It should be attractive and eye catching. It should also contain a slogan for your attraction. Remember you want people to visit your cell!
8. This will be labeled with the name of each analogy. Also include creative directions to your cell attraction. *Example: Travel down Xylem Hwy to exit 3B Plant Cell. Turn left onto Cell Membrane Rd. Take Palatine Mesophyll Bypass on your right. The attraction will be ½ mile down on the left side on Eukaryotic Drive.* Your name must appear on the back cover at the bottom only!

9. The set- up of the other pages in your brochure is up to you. Be certain to use all pages, and NOT to leave blank space.

10. Use correct spelling and grammar throughout the project. An exception might be if you alter the name of a cell part slightly for creative purposes. *Ex: Lysolady = Lysosome.*

11. Humor & creativity are strongly encouraged!

12. You must provide a copy of the following chart completed with the correct information.

13. Project is due March 10 (A) or March 11, 2015 (B). Project must be turned in on time. NO EXCEPTIONS. If you will not be present in class on that day (absent for any reason), you may turn in the project before the due date or send it in with someone else (that you trust).

14. What needs to be turned in on March 10 or March 11:

1. Travel Cell Brochure
2. Cell Structure Chart

Cell Structure Chart

|  |  |  |  |
| --- | --- | --- | --- |
| Organelle | Location | Description | Function |
| [cell wall](http://www.schools.utah.gov/curr/science/sciber00/7th/cells/sciber/cellwall.htm) |  |  |  |
| [cell membrane](http://www.schools.utah.gov/curr/science/sciber00/7th/cells/sciber/membrane.htm) |  |  |  |
| [nucleus](http://www.schools.utah.gov/curr/science/sciber00/7th/cells/sciber/nucleus.htm) |  |  |  |
| nucleolus |  |  |  |
| nuclear membrane with pores |  |  |  |
| [cytoplasm](http://www.schools.utah.gov/curr/science/sciber00/7th/cells/sciber/cytoplas.htm) |  |  |  |
| endoplasmic reticulum (E.R.) |  |  |  |
| ribosome |  |  |  |
| [mitochondrion](http://www.schools.utah.gov/curr/science/sciber00/7th/cells/sciber/mitocho.htm) |  |  |  |
| [vacuole](http://www.schools.utah.gov/curr/science/sciber00/7th/cells/sciber/vacuole.htm) |  |  |  |
| [lysosome](http://www.schools.utah.gov/curr/science/sciber00/7th/cells/sciber/lysosom.htm)s |  |  |  |
| [chloroplast](http://www.schools.utah.gov/curr/science/sciber00/7th/cells/sciber/chloro.htm) |  |  |  |

**Grading Rubric**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | **Total Points** | **Earned Points** |
| **Number of included cell parts** | Less than 5 cell structures are included | 5 cell structures are included | 6-8 cell structures are included | 9-11 cell structures are included | All 12 cell structures are included | **20** |  |
| **Graphics/**  **Illustrations** | No graphics provided | Less than 25% of cell structures have less than 2 graphics provided | Less than 50% of cell structures have less than 2 graphics provided | Less than 75% of cell structures have less than 2 graphics provided | All graphics are provided, accurate, and colorful | **10** |  |
| **Use of analogies** | Less than 25% of analogies are accurate and clear | More than 25% of analogies are accurate and clear | More than 50% of analogies are accurate and clear | 100% of analogies are accurate and clear | 100% of analogies are accurate, extremely clear, and creative | **10** |  |
| **Descriptions of locations** | Descriptions are in terms of cells not the location | Less than 75% of descriptions are clear / correctly completed | 75% of descriptions are clear / correctly completed | 90% of descriptions are clear / correctly completed | 100% of descriptions are clear / correctly completed | **15** |  |
| **Brochure features** | Front and back cover do not contain required elements | 25% of front and back cover contain required elements | 50% of front and back cover contain required elements | 75% -100% of front and back cover contain required elements | 100% of front and back covers are accurate and extremely creative | **10** |  |
| **Neatness and organization** | Looks like a rough copy; very sloppy | Little effort demonstrated; not set-up like the examples | Fair effort demonstrated- clearly room for improvement | Good effort demonstrated- well organized | Excellent effort; very good organization / formatting | **5** |  |
| **Creativity** | Student submitted a brochure with actual cell information only | An attraction is used for the brochure, but all information is based on an actual cell | An attraction is used for the brochure, but 50% of information is based on an actual cell | Clever concept; good link between cell and attraction | Very unique or novel concept | **5** |  |
| **Conceptual Understanding**  \*\*\*This category is looking at the overall understanding of both students based on the final product created. Individual level of understanding will be determined through the written summative assessment. | Student project shows limited understanding of cell structure & function | Student project shows understanding of cell structure, but lacks understanding of function | Student project shows good under-standing of both cell structure & function, but lacks concept connections | Student project shows a proficient level of under-standing of both cell structure & function, and the ability to connect concepts | Student project shows an exemplary level of under-standing in all areas: cell structure & function and concept connections | **25** |  |
| **Total** | | | | | | **100** |  |

Use the table below as a way to help you not only organize your information, but also as a checklist to ensure you did everything required.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cell Part** | **Cell Part Function** | **Attraction Analogy Name** | **Short Attraction Analogy Description** | **Required graphics**  (picture of actual cell part & picture of attraction analogy) | **Front Cover**  **&**  **Back Cover Requirements**  (Name, Slogan, Directions, Labeled map of attraction, Phone Number) |
| [cell wall](http://www.schools.utah.gov/curr/science/sciber00/7th/cells/sciber/cellwall.htm) |  |  |  |  |  |
| [cell membrane](http://www.schools.utah.gov/curr/science/sciber00/7th/cells/sciber/membrane.htm) |  |  |  |  |  |
| [nucleus](http://www.schools.utah.gov/curr/science/sciber00/7th/cells/sciber/nucleus.htm) |  |  |  |  |  |
| nucleolus |  |  |  |  |  |
| nuclear membrane with pores |  |  |  |  |  |
| [cytoplasm](http://www.schools.utah.gov/curr/science/sciber00/7th/cells/sciber/cytoplas.htm) |  |  |  |  |  |
| endoplasmic reticulum (E.R.) |  |  |  |  |  |
| ribosome |  |  |  |  |  |
| [mitochondrion](http://www.schools.utah.gov/curr/science/sciber00/7th/cells/sciber/mitocho.htm) |  |  |  |  |  |
| [vacuole](http://www.schools.utah.gov/curr/science/sciber00/7th/cells/sciber/vacuole.htm) |  |  |  |  |  |
| [lysosome](http://www.schools.utah.gov/curr/science/sciber00/7th/cells/sciber/lysosom.htm)s |  |  |  |  |  |

\*\*\****YOUR ATTRACTION BROCHURE SHOULD BE ATTRACTIVE AND ENTICING…USE COLOR IMAGES OR COLOR THEM YOURSELVES, PICTURES SHOULD BE VISIBLE, ANYTHING IN YOUR HANDWRITING SHOULD BE NEAT, ALL GLUED ITEMS MUST BE NEAT AND DRY AT TIME OF SUBMISSION, AND PLEASE ENSURE TO CHECK YOUR SPELLING AND GRAMMER THROUGHOUT THE ENTIRE PROJECT, IT COUNTS! \*\*\* HAVE FUN AS YOU SHOW OFF YOUR EXCELLENT KNOWLEDGE.***