

**Lesson Plan Components - Grades 1-12**

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| **Subject/Course: Biology**  | **Name: Dave Shillingford** |
| **Grade Level: 11** | **Date(s) & Time(s): 1 Period**  |
| **Topic: Dichotomous Key**  | **Length of Lesson: 75mins** |

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| **Overview:** While the unit diversity of living things in the grade 11 curriculum can be a very interesting topic full of debate and conversation, there are portions that can be rather dry. The area of taxonomy and classification is very information dense and can often lose some students when covering the material. I have found that making it relatable with the candy lesson allows students to take the knowledge they have learned and apply it to a hands on activity. This activity also allows students to use technology throughout the activity while keeping the lesson fun and interactive. **EXPECTATION(S)**B2. investigate, through laboratory and/or field activities or through simulations, the principles of scientific classification, using appropriate sampling and classification techniques;B3. demonstrate an understanding of the diversity of living organisms in terms of the principles of taxonomy and phylogeny.**Specific Expectation(s):**B2.1 use appropriate terminology related to biodiversity, including, but not limited to: genetic diversity, species diversity, structural diversity, protists, bacteria, fungi, binomial nomenclature, and morphology [C]B2.2 classify, and draw biological diagrams of, representative organisms from each of the kingdoms according to their unifying and distinguishing anatomical and physiological characteristics B2.4 create and apply a dichotomous key to identify and classify organisms from each of the kingdoms **Learning Goal(s)/Refined Expectations(s):**I am learning to using correct vocabulary to classify different species I am learning to use correct vocabulary to characterize diverse organisms I am learning to use dichotomous keys effectively to classify different organisms within different kingdoms **Success Criteria (if appropriate):**I can create a dichotomous key to identify different organisms I can use correct vocabulary throughout the dichotomous key to effectively classify organisms  |
| **ASSESSMENT/EVALUATION****Curriculum**Strategy: Recording Device: Assessment OF Learning Dichotomous key assignment Assessment FOR Learning Debriefing after the assignment **Learning Skills**Skill(s):

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| Responsibility | X | Collaboration | X |
| Organization | X | Initiative |  |
| Independent Work |  | Self- Regulation | X |

  Recording Device: Observational notes Debrief notes  |
| **DIVERSITY AND INCLUSIVITY**Make sure all students are able to be in contact and consume the candyMake sure if any student can not physically complete the task they are partnered with someone who can |
| **Safety Guidelines*** Make sure no student has any allergies to any of the candy
* Make sure there are no issues with any of the parents allowing them to consume the candy
* Remind them that while it is consumable to not consume it until the end
* Remind the students to be careful to not consume the candy too fast as it could lead to choking
* Chromebooks to be used in accordance with the rules
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| **RESOURCES AND MATERIALS*** Chromebooks
* Notebooks
* Pens
* Pencils
* Earasers
* Whiteboards
* Whiteboard markers
* Variety of candy (ie chocolate bars, nerds, lolly pops, starbursts, tootsie rolls, werther originals…)
* Youtube video <https://www.youtube.com/watch?v=DVouQRAKxYo>
* Teaching Laptop
* Projector
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| **TEACHING/LEARNING SEQUENCE****Beginning***/Activation*:(approx 15 mins)* Start class by creating a word wall on the whiteboard asking the students to right all the vocabulary they have learned from previous lessons about classify different organisms and kingdoms
* Play youtube video to refresh them of any vocabulary they may have missed <https://www.youtube.com/watch?v=wpKulkADzBk&list=PLwL0Myd7Dk1FuT0I6icE7octRIgJqMBhS&index=2>

**Middle***/Action/Application/Exploration*: (approx 55 mins)* Review from previous lessons how a dichotomous key works
* Take up dichotomous key worksheet from yesterday's class
* Bring out the bag full of different types of candy
* Take out one each of them so that each student can see exactly what they are
* Explain that they are to get into pairs and to grab one of each type of candy from the bag and find a location in the classroom to work but not to begin yet
* Once each pair has one of each type of candy and is settled down explain that their task will be to create a dichotomous key that will be handed in via through google classroom
* Display <https://app.creately.com/manage/recent> over projector to show how to create the key electronically
* Allow students to begin working on the dichotomous key
* Circulate the room and stop at each pair to have debriefing with each student about what they got out of the assignment and what might they do if a new candy was introduced like a stick of gum and how that would change their key?
* Record observation and debriefing notes

**End***/Consolidation/Communication*: (approx 10 min)* Regroup students and have them return to their seats
* Begin a discussion with them about what some of their strategies were to break down the characteristics of each candy ?
* Ask them what some difficulties were when trying to separate the candy ?
* Ask how might we be able to use those strategies when completing a dichotomous key for the mammal kingdom?
* Write down positive strategies on the board so students can create their own note for this lesson
* Leave it on the board and begin the next class by going over these strategies and fully developing a note on dichotomous keys and effective techniques
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| **REFERENCES** **Ontaio currciulum website -** [**http://www.edu.gov.on.ca/eng/curriculum/secondary/index.html**](http://www.edu.gov.on.ca/eng/curriculum/secondary/index.html)**Youtube video-** [**https://www.youtube.com/user/AmoebaSisters**](https://www.youtube.com/user/AmoebaSisters)**specifically -** [**https://www.youtube.com/watch?v=wpKulkADzBk&list=PLwL0Myd7Dk1FuT0I6icE7octRIgJqMBhS&index=2**](https://www.youtube.com/watch?v=wpKulkADzBk&list=PLwL0Myd7Dk1FuT0I6icE7octRIgJqMBhS&index=2)**Website to create dichotmous key -**[**https://creately.com/lp/dichotomous-key-maker/Creating dichotomous key website -**](https://creately.com/lp/dichotomous-key-maker/)  |