Olmsted Falls Schools: Unit Design Framework

Subject: Science **Unit: Genetics-Chapters 3 and 4**

Part I: Clarity of Learning Targets

What are the grade level indicators that go with this unit? Place a star next to the grade level indicators that are Power Indicators. Are the indicators in student friendly language? Place the level of Bloom's Taxonomy next to each Power Indicator.

A.) recognize that living things need to reproduce to pass on their traits because they will not live forever. (conceptual, remember)

B.) describe that in asexual reproduction, all the traits come from one parent. (factual, understand)

C.) describe that in sexual reproduction, the traits come from two parents, and therefore the offspring is never identical to either parent. (conceptual, understand)

D.) recognize that similarities in parents and offspring are inherited (ex. eye color, flower color), whereas other similarities are learned (ex. table manners). (conceptual, understand)

E.) recognize that science can only answer some questions and technology can only solve some human problems (ex. genetic engineering, cloning). (Factual, Remember)

What are the Big Ideas that go with this unit?

1. Reproduction can happen/occur either sexually or asexually, and it's necessary for survival, and the passing of traits. (A, B, and C)

2. New combinations of traits may occur in sexual reproduction. (A and C)

3. Some characteristics/likenesses are learned, whereas some likenesses are inherited. (D)

What are the Essential Questions that go with this unit?

1. What are the two types of reproduction, and why is reproduction necessary for survival of the species? (A, B, and C)

2. How do new combinations of traits (or new characteristics) occur during sexual reproduction? (A and C)

3. What is the difference between learned and inherited characteristics? (D)

What strategies will we use in order to make learning targets clearer for all students, before, during and after instruction? How will you communicate the learning indicators to students?

- Essential question posters
- I can handout for genetics – connects the learning targets to the classroom activities, self-reflection component
- I can statements communicated (smart board, verbally) throughout lessons
- Ask the students to restate the learning target in their own words

Part II: Feedback and Assessments (Formative and Summative)

How will we provide students with feedback throughout the unit?

What formative assessments will we use? (Non-graded assignments that check for understanding and provide feedback to the students) Incorporate the 7 Strategies of Assessment for Learning here.

- DNA Structure replication and mutations – ABCD cards
- Chapter 3, Section 1 formative assessment – multiple choice questions – ABCD cards

How will students be involved with keeping track of their own learning progress (note—this is different than tracking points for a grade)?

- ABCD cards – immediate feedback for the teacher and students
- "I can" handout – students self reflect on their level of understanding for each learning target

What summative assessments will we use? (Graded, evaluative assessments)

- Quiz – chapter 3 (Sections 1 and 2) (A, C, and D)
- Quiz – chapter 4 (B, C, D, and E)
- Genetic child activity

Part III: Instruction and Student Activities

What instructional and student activities will we use for this unit? These activities should directly align with the indicators and assessments.

- Read – Pg. 97-98, Pg. 102-103
- "I can" review
- Chromosomes and genes video
- Brain pop: genetics
- Brain pop: heredity
- Smart Board notes
- Genetic wheel
- Nature vs. Nurture
- Mendilian crosses
- Dominate vs. Ressive traits
- 2 column notes
- Canter guided reading
- DNA rep. lab
- Bill Nye human chara. And adaptions
- Read pg. 84-85
- Brain pop: probability
- Read pg. 86-89 – Punnett square practice Smart Board