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| **Lesson Plan:** |

**Prescribed learning outcomes:**

**B1 - 1, 2, 3**

**Big Ideas and Skills learned at end of unit**

**2, 5**

**Learning objectives**

**2, 3, 4, 6**

*Please refer to Unit plan\_Reproduction for details.*

**Material and equipment needed**

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| --- | --- | --- | --- | --- | --- |
| Answer key to homework problems | GenomeBC handouts \*2 | Brown, yellow, black pipe cleaners | video \*3 | Powerpoint slides + questions + homework + groups | black pom pom balls |
| googly eyes | glue gun/white glue | Sample bee | Assignment handout | Powerpoint notes | paper |
| Scissors |  |  |  |  |  |

**Assessment Plan:**

**Formative -** self-assessment on learning, brainstorming on genetics

**Hook and Introduction**

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| --- | --- | --- | --- |
| **Time** | **Activity** | **Teaching notes** | **Assessment** |
| 1:45- 1:55 | * Video on genes | https://www.23andme.com/en-ca/gen101/genes/   * While this is happening, hand out note package for today * Remind students answer key to their homework problems will be in a binder |  |

**Development**

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| --- | --- | --- | --- |
| **Time** | **Activity** | **Teaching notes** | **Assessment** |
| 1:55-2:15 | * Powerpoint on mutations | * Prompt them if they know anything about mutations. Are they always bad? Refer to video? * Walkthrough slides and advise that there are blanks in the notes to fill |  |
| 2:15-2:50 | * Genome BC activity | * Groups on board * Tell them Part 1-2 should take max 15mins, making their mutant bees should take max 25mins, and they need to make sure they clean up. They need to hand in the last page of the bee worksheet package answering a question before they leave class today. * Question 1: compare each of your bees to the healthy bee (#1). How are these sick bees different and which mutation caused them to be sick? Are these positive, negative, or neutral mutations? Why? * Question 2: How does a mutation in your bee's DNA sequence cause them to develop those traits? |  |

**Closure**

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| --- | --- | --- | --- |
| **Time** | **Activity** | **Teaching notes** | **Assessment** |
| 2:55-3:00 | * Exit slip | 5) Quiz next class minus gene therapy  Suggested problems and reading:  Section 4.2  Problems: (pg 145) 2, 3, 4, 7, 10, 11, 12, 14  (pg 146) 2, 6, 8, 10, 11, 12, 16, 21  Assignment (due next Weds):  1) Complementary base pairing  2) Chromatin packing and gene expression  3) Critical thinking question: why need mRNA as middle step?   * **Must hand in exit slip before they leave.** | Exit slip |