Topic: Chromosome Mutation Activity

Summary: This activity is inquiry-based where students mimic chromosome mutations by cutting and pasting paper chromosomes.

Goals & Objectives: Students will be able to visually see the 5 types of chromosomal mutations. Students will be able to demonstrate the different types of chromosomal mutations.

Standards: *CA Biology 4c. Students know* how mutations in the DNA sequence of a gene may or may not affect the expression of the gene or the sequence of amino acids in an encoded protein.

Time Length: 25 minutes

Materials:

- Scissors; one per student is best or one per two students
- Glue sticks or tape
- Photocopied worksheets

Procedures:

1. Photocopy page 1 and hand out to the students. Photocopy page 2, cut along the dotted line into 3 sections.
2. Hand each student the activity printout and only one section to each student.
3. Since this is an inquiry-based activity, try not to give to many instructions but allow the students to use their textbook or their associated lecture notes.

Accommodations: Students who cannot use scissors can give verbal directions to another student. Students with an IEP can take the handout home if they need extra time.

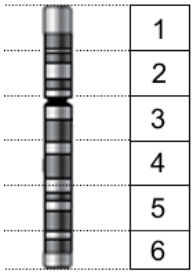
Evaluation:

Each mutation is worth 2 points each for a total of 10 points.

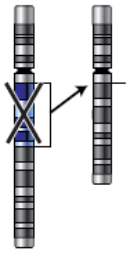
Name: _____ Row: _____

Date:_____ Period:_____

Chromosome Mutation Activity



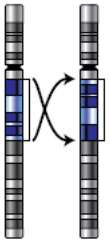
On the left, the numbered rectangle represents a chromosome. Each of the numbers are meant to represent several bands on a chromosome. Cut out each rectangle chromosome while keeping the individual numbered squares attached. Your goal is to perform a mutation to each of your numbered chromosomes. Tape or glue the mutated chromosome to the paper next to each type of mutation. The insertion and translocation mutations will require two different chromosomes (circle and rectangle). One rule is each mutated chromosome must start with the number one and end with the number six.



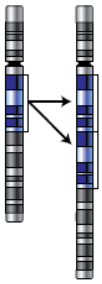
Deletion : Example

1	2	4	5	6

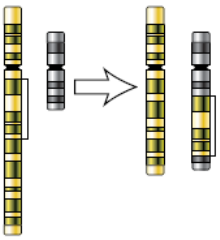
Inversion



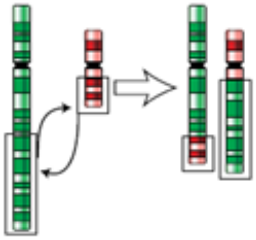
Duplication



Insertion



Translocation



1	2	3	4	5	6
1	2	3	4	5	6
1	2	3	4	5	6

1 2 3 4 5 6

use for insertion mutation

1	2	3	4	5	6
1	2	3	4	5	6
1	2	3	4	5	6

1 2 3 4 5 6

use for translocation mutation

1	2	3	4	5	6
1	2	3	4	5	6
1	2	3	4	5	6

1 2 3 4 5 6

use for insertion mutation

1	2	3	4	5	6
1	2	3	4	5	6
1	2	3	4	5	6

1 2 3 4 5 6

use for translocation mutation

1	2	3	4	5	6
1	2	3	4	5	6
1	2	3	4	5	6

1 2 3 4 5 6

use for insertion mutation

1	2	3	4	5	6
1	2	3	4	5	6
1	2	3	4	5	6

1 2 3 4 5 6

use for translocation mutation