

Reebop Activity Worksheet

Name: _____

Create a Reebop Zygote

Instructions

1. Each pair will receive a complete set of chromosomes for an adult Reebop. Note that for each homologous chromosome there is a lower and upper case of the same letter (A a, B b, C c, etc.). These are called alleles.
2. Arrange the chromosomes face down and mix them up.
3. Now pair up the homologous chromosomes.
4. To create two gametes (sperm and egg), randomly choose one chromosome from each homologous pair. Each partner will now have a gamete.
5. Choose a partner from another table to form a Reebop zygote. The zygote is created when two gametes merge into a single cell. Once you have created your zygote, pair up the homologous chromosomes and use the "Reebop Traits Key" to determine your Reebop's appearance (phenotype). Record the alleles and the appearance of your baby Reebop in the table below.

Questions

1. How many chromosomes does a Reebop gamete have? _____
2. How many chromosomes does a Reebop zygote have? _____
3. Is your zygote genetically identical to the parents? Why or why not?

4. When you created your gamete, what was the probability (chance) that your gamete would have a "E" or a "e"?
5. The random segregation of homologous chromosomes is called _____?

Building a Baby Reebop

1. Use the "Key to Reebop Traits" to fill in the following table for your Reebop zygote. Construct your Reebop baby based on this information.

Characteristic	Alleles	Appearance
Number of antennae		
Number of bumps on back		
Nose color		
Number of eyes		
Number of body segments		
Tail shape		
Leg color		

2. Based on the "Key to Reebop Traits", does each characteristic (e.g. nose color, number of eyes) have the same number of traits (blue, black, red; 2 or 3)?

3. In the case of the color of the nose, can you explain how two variations of a gene (Q or q) can produce three traits (red, orange, yellow)?

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4. In the case of the tail shape, how could two different variations of this gene (T and t) produce only two traits (curly or straight)?

Reebop Key to Traits

1 antenna = AA
2 antennae = Aa
No antennae = aa

Red nose = QQ
Orange nose = Qq
Yellow nose = qq

2 eyes = EE or Ee
3 eyes = ee

2 body segments = dd
3 body segments = DD or Dd

1 green hump = MM
2 green humps = Mm
3 green humps = mm

Curly tail = TT or Tt
Straight tail = tt

Blue legs = LL or Ll
Red legs = ll

Reebop Morphology

