

Summative Assessment for Where We Come From

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Assessment Title: Summative Assessment for Where We Come From

Assessment Form: Summative

Type of Assessment: Constructed Response, Selected Response

Duration: 30-45 minutes

Standard (s) Assessed:

MA.E.2.3.1 The student compares experimental results with mathematical expectations of probabilities.

MA.E.2.3.2 The student determines odds for and odds against a given situation.

SC.F.2.3.2 The student knows that the variation in each species is due to the exchange and interaction of genetic information as it is passed from parent to offspring.

SC.F.2.3.2.8.1 The student knows how dominant and recessive traits are inherited.

SC.F.2.3.2.8.2 The student uses a Punnett square to predict the results of crosses between pure and hybrid organisms.

Description of Assessment Activity: Students take a test over the information contained in the unit plan.

Teacher Directions:

1. Read the test before beginning the unit. Duplicate one student copy of the assessment for each student.
2. Read aloud the directions for each section to students. Ask if there are any questions.
3. Allow students time to take the test.
4. Collect and score the test.

Student Directions:

1. Read and follow along as I go over the directions for each section of the test.
2. Work quietly and carefully.
3. When you've finished, turn your test over and (read, draw, etc.) until I collect the papers.

Scoring Method and Criteria:

1. Multiple Choice questions 1-14 count 5 points each. Question # 15 counts 30 points.
2. Use the grading scale in your district to determine a letter grade.

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NAME:

DATE:

DIRECTIONS: Circle the letter of the correct answer.

1. A genotype is "Rr." The "r" stands for ...
 - A. the homozygous trait
 - B. the recessive trait
 - C. the color green
 - D. the dominant trait
2. If "y" represents green seeds and "Y" represents yellow seeds...
 - A. the flower will be yellow and green striped
 - B. green is dominant
 - C. yellow is dominant
 - D. none of the above
3. Which choice correctly lists the 4 amino acids that make up DNA?
 - A. atosine, thymine, cytosine, guatnine
 - B. atosine, thymine, cytosine, guavanine
 - C. adenine, thymide, cyanide, gatanine
 - D. adenine, thymine, guanine, cytosine
4. A pea plant with the combination of "Tt" is ____.
 - A. purple
 - B. homozygous
 - C. heterozygous
 - D. delicious !

Use the Punnett Square below to answer questions # 5-10.

EE; Ee = purple

ee = yellow

	E	E
E		
e		

5. Which color flower is dominant?
 - A. purple
 - B. yellow
 - C. purple and yellow striped
6. If the parent plants above are cross-bred, what is the percent chance of producing a homozygous dominant offspring?
 - A. 25 %
 - B. 50 %
 - C. 75 %
 - D. 100 %

7. What is the percent chance of the parent plants above producing a heterozygous offspring?
- 25 %
 - 50 %
 - 75 %
 - 100 %
8. What is the percent chance of the parent plants producing a yellow offspring?
- 25 %
 - 50 %
 - 75 %
 - 0 %
9. What are the phenotypes of both of the parent plants?
- one yellow, one purple
 - both purple
 - EE, Ee
 - both yellow
10. What are the genotypes of both of the parent plants?
- yellow and purple
 - EE, Ee
 - E, E
 - both yellow

Fill in this Punnett Square on scratch paper and choose the answers that match the numbers. You may use A, B, & C more than once for questions # 11-14.

- BB
- Bb
- bb

	B	b
b	# 11	# 12
B	# 13	# 14

Answer the following question in complete sentences. You may use the back of this page if you need additional room or you may use notebook paper.

15. My father really wanted to have a son. My parents tried four times and ended up with four daughters. Based on what you have learned about the probability of having male vs female offspring, why didn't my parents have 2 boys and 2 girls?

(Your answer should include reference to the expected probability of boy vs girl by using a Punnett Square)

Answer Key

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1. B
2. C
3. D
4. C
5. A
6. B
7. B
8. D
9. B
10. B
11. B
12. C
13. A
14. B

15. Answer should include at least a reference to the 50:50 probability of boy vs girl, maybe even a Punnett Square drawn out. Probability is only an expected outcome; experimental results don't always match the mathematical expectation. Students may also refer to the topics discussed in the "Pair 'Em Up!" activity. Predictions are more accurate when dealing with very high numbers/ large population samples.