

Wilbur's and Wilma's Family, Part II

Overview

In this exercise, students will flip a coin to choose alleles and then create pictures of possible offspring from Wilbur and Wilma.

Textbook References

McDougal Littell

Unit C Chapter 4, pp. 101-107, Living Things Inherit Traits in Patterns

Prentice Hall

Chapter 14, Section 3 pp. 530-535, Mendel's Work

Chapter 14, Section 4 pp. 538-545, Probability and Heredity

Materials

*Materials to be supplied by the teacher or the students are marked with an asterisk.

Materials for small groups

- Completed *Wilbur and Wilma—Possible Offspring Traits I and II* worksheets from the previous lesson
- 1 *Wilbur's and Wilma's Child* worksheet
- 1 *Alien Traits Cut-Out* sheet
- 3 (1 each) *Picture Frames with Head Shapes* worksheets (wide, long, round)
- 1 glue stick
- 2 pennies
- Scissors
- Tape

Procedure

1. Hand out the *Wilbur's and Wilma's Child* worksheet. Instruct one student in each pair to play the role of Wilma and the other to play the role of Wilbur.
2. For each trait students will complete the chart. Remind students that each parent can only give one allele. If a parent is heterozygous, the students will have to flip a coin to decide which allele will be passed on to the child. If the parent is homozygous, they will not have to flip a coin. The code for heads and tails is provided for each trait on the worksheet.
3. After both alleles for each trait have been determined, students should fill in the genotype and the phenotype of the child.
4. Once the whole worksheet is complete, students can construct the new child by cutting out the appropriate traits from the cut-out sheet and gluing them to the picture frame worksheet that has the correct head shape.

5. Have each pair of students tape their potential offspring to the board for the whole class to see.
6. Hold a brief discussion about all the different children that could come from the same parents. Can the students find any two children that are identical?

Reflection/Discussion

1. Have each pair of students create a second child in order to generate a larger sample size or collect results from multiple classes.
2. Have the class compare individual traits to the respective Punnett squares. For example, the Punnett square for the ear trait predicted that 50% of the offspring would have pointed ears and 50 % would have rounded ears. Is the reflected in the students' results?
3. This is a good time to reinforce ideas about probability. Were the class results *exactly* the same as the Punnett squares predicted? How close were they? How far off? If they are not exactly the same, is this wrong? Typically, the larger the sample size the closer the numbers will be to the Punnett squares.

Wilbur's and Wilma's Child

Name _____

Date _____

Trait: Antlers

Heads = A^B (large, branched)

Wilbur gives:	Child's genotype:
Wilma gives:	Child's phenotype:

Tails = A^S (short, not branched)

Trait: Mouth

Heads = M (large)

Wilbur gives:	Child's genotype:
Wilma gives:	Child's phenotype:

Tails = m (small)

Trait: Ears

Heads = P (pointed)

Wilbur gives:	Child's genotype:
Wilma gives:	Child's phenotype:

Tails = p (rounded)

Trait: Head Shape

Heads = H^N (narrow)

Wilbur gives:	Child's genotype:
Wilma gives:	Child's phenotype:

Tails = H^W (wide)

Trait: Nose

Heads = N (small)

Wilbur gives:	Child's genotype:
Wilma gives:	Child's phenotype:

Tails = n (large)

Trait: Eyes

Heads = E (large)

Wilbur gives:	Child's genotype:
Wilma gives:	Child's phenotype:

Tails = e (small)

Trait: Eyebrows

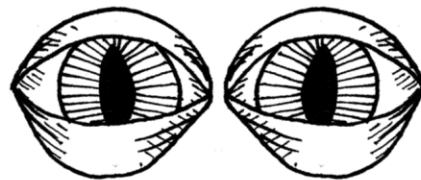
Heads = X (large, female)

Wilbur gives:	Child's genotype:
Wilma gives:	Child's phenotype:

Tails = Y (small, male)



pointy ears



big eyes



roundy ears



small eyes



small nose



big nose



small eyebrows



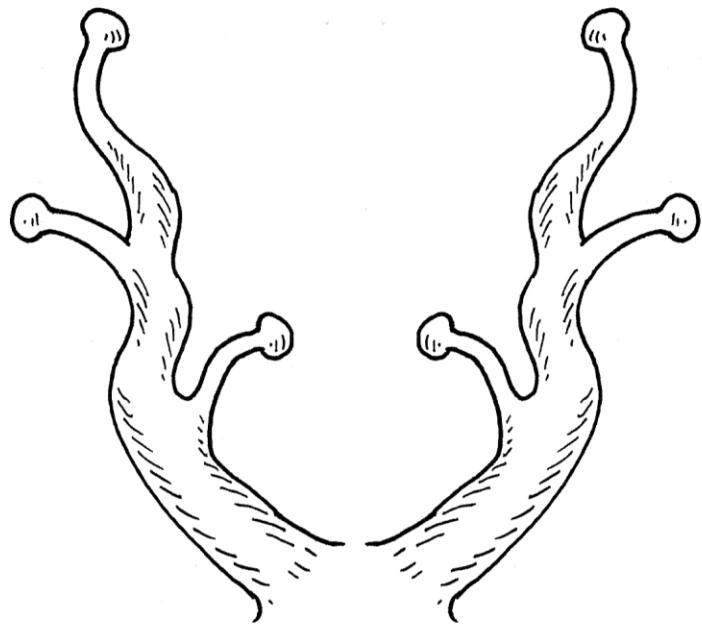
big eyebrows



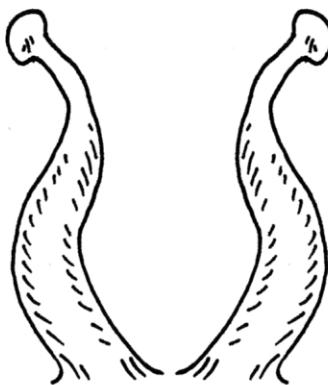
small mouth



large mouth



big antennae



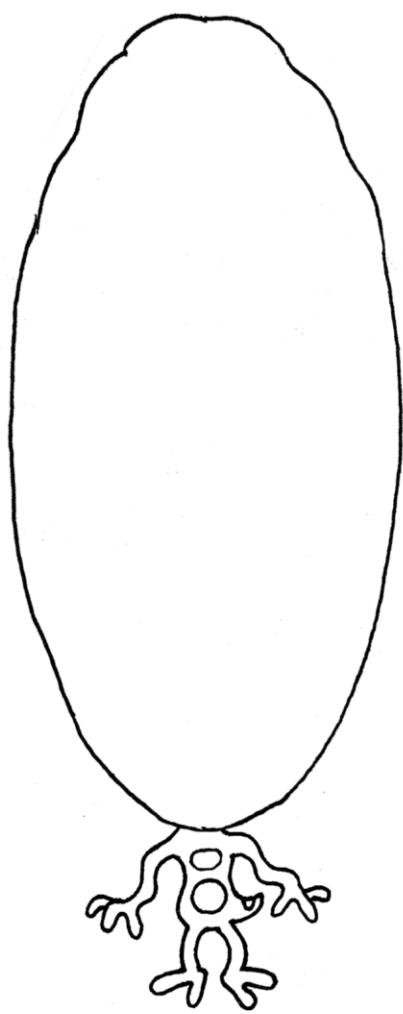
medium antennae



small antennae

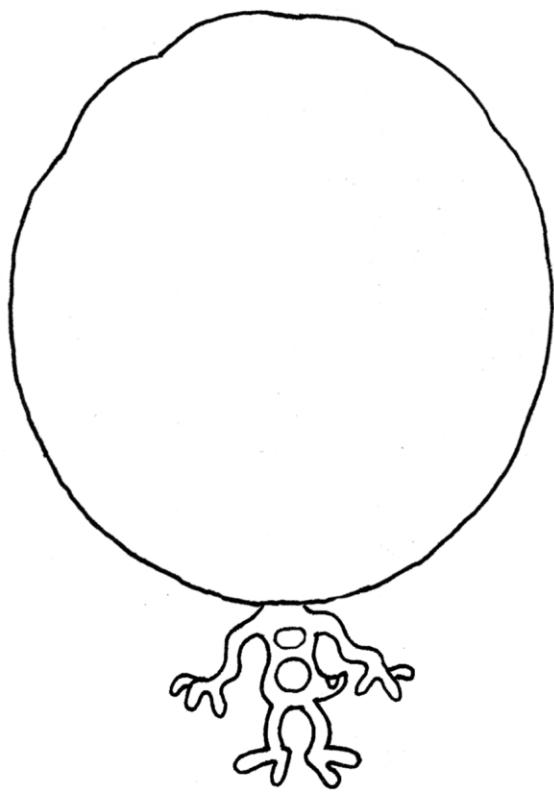
Student name _____

Alien name _____



Student name _____

Alien name _____



Student name _____

Alien name _____

