

Teacher Notes

Materials Needed:

Two coins (penny, poker chip, etc.) per student - One marked F for female and one marked M for male
Copies of student worksheets - Genetics with a Smile, Smiley Face Traits, & Wrapping It Up

NOTE: I copy the first two worksheets on one page front/back. I also copy the two pages of the Wrapping It Up worksheet front/back on one piece of paper. I also display a copy of the Smiley Face Sample in the room rather than make copies for every student.

Microsoft Word & printers

NOTE: If you do not have access to Microsoft Word, the students can draw the smiley faces by hand.

Crayons or colored pencils

Directions:

(1) After students have read the instructions on the worksheet, provide two coins for each student. The coin marked F represents the female parent and the one marked M represents the male parent. Students need to flip both coins for each trait and record the results in the chart by circling the correct allele. Students will need to complete the genotype for each trait then refer to the “Smiley Face Traits” page to determine the phenotype.

NOTES:

- You might consider having students form pairs to complete the project rather than having each student work alone. Since I am assessing the use of technology in addition to genetics, I have each student create a smiley face.
- Share the sample Smiley Face (next page of this download) with the students and ask them to give the correct genotype for several of the smiley face’s traits using the Smiley Face Traits page.

Possible questions ...

- (1) What genotypes could result in a smiley face with star eyes? **EE or Ee**
- (2) Give the phenotype for a smiley face with the genotype Tt for its smile. **Thick smile**
- (3) Is this smiley face a female or male? How do you know? **Female - pink bow**
- (4) Does the smiley face include any recessive traits? If so, what are they? **Yes, curly hair, red eye color, thin mouth, and nose pointing up are all recessive traits.**
- (5) The smiley face has long hair (more than 1 inch long). What are the possible genotypes for long hair? **LL or Ll** What are the possible genotypes for short hair? **ll**
- (6) Which traits are a result of incomplete dominance? **Nose and ear color**

(2) For Part B, the students need to flip the male coin to determine the sex of their smiley faces. Since the female parent always contributes an X, the male will determine if the smiley will be a female or male. Female smiley faces need pink bows in their hair, while males need blue bows.

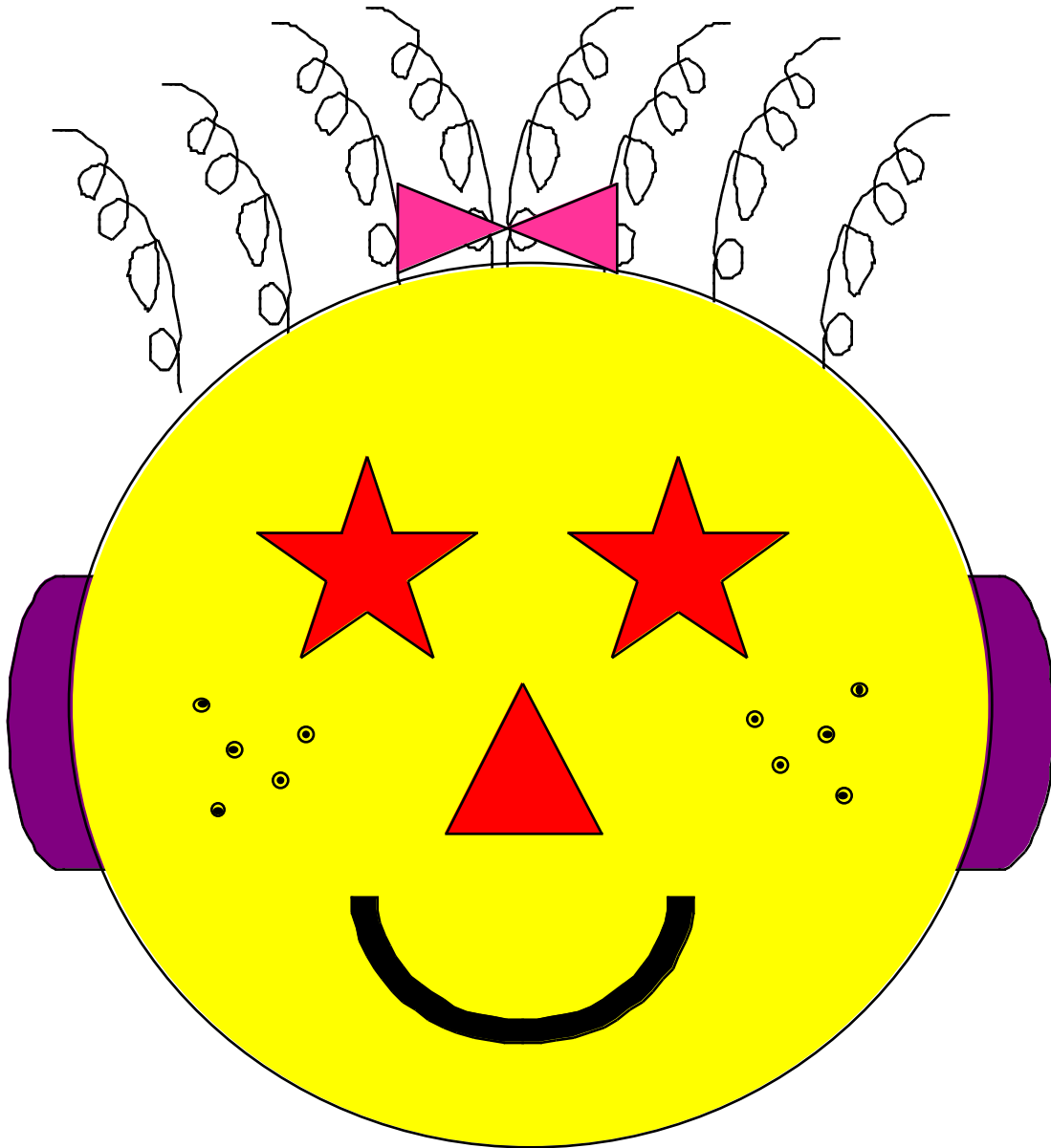
(3) For Part C, students need to draw a “draft” sketch of their smiley face in the box provided BEFORE they attempt to draw it using the computer. After they have completed the draft, allow time for the students to use Microsoft Word to create the final version of the smiley face.

NOTES:

- I do not allow students to print in color, since I have limited funds for printer cartridges. I have the students print black/white copies on the main laser printer and provide crayons and colored pencils for the students to use to add color. If you do not have any limitations, allow the students to create and print their smiley faces with color. You might also consider allowing students to create their smiley faces at home if they have access to a computer and color printer.
- I have created a Directions for Microsoft Word(98) Drawing Tools worksheet for students to use. I spend one class period discussing the basic tools and allow time for the students to experiment before I assign the smiley face project.
- If you do not have access to a computer lab and/or Microsoft Word, students can draw the smiley faces by hand and add color using crayons and colored pencils.

(4) After the smiley faces are completed, display them in a hallway or other location that will allow students to view them easily. If you have more than one class, color code the pages (glue to construction paper) to identify each class period. Students will need to use the completed smiley faces to answer the questions on the front of the “Wrapping It Up” worksheet. I have provided an answer key for the Wrapping It Up worksheet - look on last two pages of the pdf download!

Smiley Face Sample



Name: Susie Jo Smiley
Parent: Sue Jo Smith
1st Hour