

Biology

Name: _____

Review for quiz #6

Date: _____ Hour: _____

Follow the directions below to draw your “child” resulting from a coin flip. Use your knowledge of basic and complex genetics to create a picture of your “child” in the space provided.

1. To determine gender of the child, flip a coin. If the coin lands heads up, the offspring is female. If the coin lands tails up, then the offspring is male.

2. For every coin toss for the rest of the activity, HEADS represents DOMINANT alleles and TAILS represents RECESSIVE alleles.

3. Use Human Variations chart to fill in the features of your offspring’s face.

- Flip the coin once to determine the first allele (example: shape of face – heads – R)

- Flip the coin once more to determine the second allele (example: shape of face – tails – r; so the face is hybrid shape)

- Complete your drawing using your answers in the space provided

4. Some traits are controlled by more than two genes, such as hair color, eye color and skin color. For these traits you will need to perform a different procedure to determine your offspring’s phenotype.






















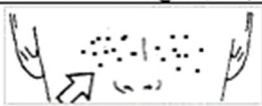

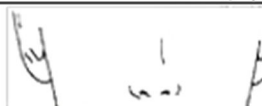
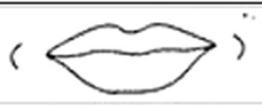
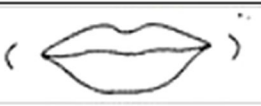
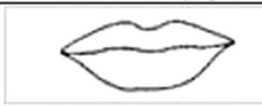
a. Hair color – dark hair is dominant over light. To determine the color of the offspring’s hair, assume there are two gene pairs involved. Flip your coin twice first to determine the genotype of the first pair of alleles (AA, Aa, or aa). Then, flip the coin twice again to determine the genotype of the second pair of alleles (BB, Bb, or bb). Match the genotype you have to the color on the chart. Circle your offspring’s hair color.

If the genotype is....	The hair color is....
AABB	black
AABb	black
AAbb	red
AaBB	brown
Aabb	regular blonde
AaBb	brown
aaBB	dark blonde
aaBb	regular blonde
aabb	pale yellow blond















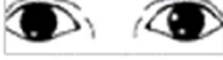
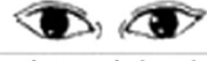








b. Eye Color - To determine the color of the offspring's eyes, assume there are two gene pairs involved. One pair codes for the pigment in the front of the iris, and one codes for the pigment in the back of the iris. Determine the genotype of the first pair (AA, Aa, or aa) as you did with hair color. Then flip again, like with hair color, to determine the genotype of the second pair (BB, Bb, or bb). Use the chart below to find out what eye color your offspring has. Circle your answer.

If the genotype is....	The hair color is....
AABB	dark brown
AABb	dark brown
AAbb	brown
AaBB	brown with green flecks
Aabb	brown
AaBb	gray
aaBB	green
aaBb	dark blue
aabb	light blue















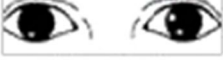
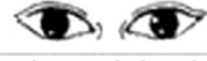



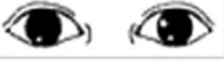




c. Skin Color – Skin color is usually controlled by a lot of different genes that basically add together to determine how dark the skin is and variations in tone. To simulate how skin color might be determined, flip a single coin 10 times. Each time the coin turns heads, give your offspring a point. Add your points together. Ten points would be a very dark skinned child and one point would be a very pale skinned child. How many points does your child have? _____

Trait	Dominant (both heads)	Hybrid (one head, one tail)	Recessive (both tails)
Length of Eyelashes	 Long (LL)	 Long (Ll)	 Short (ll)
Shape of Eyebrows	 Bushy (BB)	 Bushy (Bb)	 Thin (bb)
Position of Eyebrows	 Not connected (NN)	 Not connected (Nn)	 Connected (nn)
Size of Nose	 Large (NN)	 Medium (Nn)	 Small (nn)
Shape of Lips	 Thick (TT)	 Medium (Tt)	 Thin (tt)
Size of Mouth	 Large (LL)	 Medium (Ll)	 Small (ll)
Size of Ears	 Large (LL)	 Medium (Ll)	 Small (ll)
Freckles	 Present (FF)	 Present (Ff)	 Absent (ff)
Dimples	 Present (DD)	 Present (Dd)	 Absent (dd)

Human Variations

Trait	Dominant (both heads)	Hybrid (one head, one tail)	Recessive (both tails)
Shape of Face	 Round (RR)	 Round (Rr)	 Square (rr)
Cleft in Chin	 Absent (CC)	 Absent (Cc)	 Present (cc)
Hair	 Curly (HH)	 Wavy (Hh)	 Straight (hh)
Widow's Peak	 Present (WW)	 Present (Ww)	 Absent (ww)
Spacing of Eyes	 Close (EE)	 Normal (Ee)	 Far (ee)
Shape of Eyes	 Almond (AA)	 Almond (AA)	 Round (aa)
Position of Eyes	 Straight (SS)	 Straight (Ss)	 Slant (ss)
Size of eyes	 Large (LL)	 Medium (Ll)	 Small (ll)

Human Variations

Trait	Dominant (both heads)	Hybrid (one head, one tail)	Recessive (both tails)
Shape of Face	 Round (RR)	 Round (Rr)	 Square (rr)
Cleft in Chin	 Absent (CC)	 Absent (Cc)	 Present (cc)
Hair	 Curly (HH)	 Wavy (Hh)	 Straight (hh)
Widow's Peak	 Present (WW)	 Present (Ww)	 Absent (ww)
Spacing of Eyes	 Close (EE)	 Normal (Ee)	 Far (ee)
Shape of Eyes	 Almond (AA)	 Almond (AA)	 Round (aa)
Position of Eyes	 Straight (SS)	 Straight (Ss)	 Slant (ss)
Size of eyes	 Large (LL)	 Medium (Ll)	 Small (ll)

Name of your offspring: _____ Gender: _____