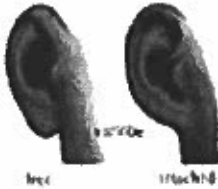


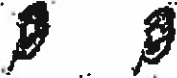
Phenotypes Lab

Answer the following questions regarding your physical traits:

1. **Unattached/free earlobes** (dominant trait) or attached earlobe (recessive trait)



2. **Hairy ears:** hair present(recessive) or hair absent(dominant)
 3. **Darwin's earpoints:** present (dominant) or absent (recessive)



4. **Face Shape:** round (dominant) or square (recessive)



5. **Freckles (facial):** present (dominant) or absent (recessive)
 6. **Chin Shape:** very prominent (dominant) or less prominent(recessive)



7. **Chin Shape:** round (dominant) or square(recessive)



8. **Cleft Chin:** present (dominant) or Absent (recessive)
 9. **Hair's natural body:** Curly (homo. dom.) or Wavy (hetero.) or Straight (homo. rec.)
 10. **White forelock** (dominant trait) vs. No white forelock (recessive trait)
 A white forelock is a patch of white hair, usually located at the hairline
 11. **Widow's peak:** Present (dominant) or absent (recessive)
 12. **Eyebrows:** bushy (dominant) or fine(recessive)



13. **Eyebrows:** connected (recessive) or not connected (dominant)
 14. **Eye Distance:** close(homo. dom.) or average(hetero.) or far (homo. rec.)



15. **Eye size:** large (homo. dom.) or medium (hetero.) or small (homo. rec.)



16. **Eye shape:** almond (dominant) or round (recessive)



17. **Eye Slant:** horizontal (dominant) or upward (recessive)



18. **Eyelash length:** long (dominant) or short (recessive)

19. **Dimples** (dominant trait) vs. No dimples (recessive trait)

Dimples are natural dents in the face to the right or left of the mouth. If a person has only one dimple, they should be counted as having dimples

20. **Mouth Shape:** long (homo. dom.) or average (hetero.) or small (homo. rec.)



21. **Lip Size:** thick (dominant) or fine (recessive)



22. **Hapsburg lip:** protruding(homo. dom.) or slight (hetero.) or absent (homo. rec.)



23. **Tongue roll-** Can the tongue curl or roll into a "u"-shaped tongue?

24. **Tongue flip** - tongue can be turned completely over

25. **Ski tongue:** tongue can extend out and touch nose, forming a "ski"

26. **Geographic tongue:** tongue breaks into fissures or cracks

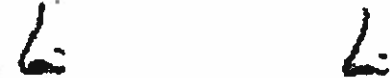
27. **Nostril Shape:** rounded (dominant) or flared (recessive)



28. **Nose size:** big (homo. dom.) or medium (hetero.) or small (homo. rec.)



29. **Nose shape:** rounded (dominant) or pointed(recessive)



30. **Ear to Nose relationship:** Large ears/ wide nose (dominant) or small ears/narrow nose (recessive)



31. **Second toe longer than great toe** - See trait graphic at bottom.

32. **Double-jointed fingers**

33. **Hitch hikers/bent thumb**(dominant trait) or straight thumb (recessive trait)



34. **Thumbness:** Right or left thumbed? Have student put hands together, interweaving his/her fingers (See graphic). Check which thumb is on top. Since some students can't decide by this method, then ask which index finger is on top. That will be which thumb should also be on top. After they have figured this out, have them replace their hands

together with the opposite thumb on top..... This feels very strange!) **Long or short index finger** - Put hand on the edge of a piece of paper so that the middle finger is slightly above the edge and the 3rd finger of each hand is right on the edge. Where is the index finger? Even with or LONGER than the 3rd finger? Shorter? Dominant = even with the 3rd finger. (see graphic below)

35. **Bent little finger** (dominant trait), or straight (recessive trait)



36. **Mid-digit hair** (dominant trait) vs. No mid-digit hair (recessive trait)



37. **Handedness:** Right or left handed?

38. **"Rubber fingers"** the ability to

bend the fingers all the way back to the tops of the hands. Is that doublejointedness or flexibility?

39. **"Witch's fingers"** It is when the person can keep the proximal phalanx and middle phalanx straight and bend the distal phalanx. (1st two joints straight, and bend tip of finger)

40. **Dislocatable hips**

41. **Angel's wings** "Angels Wings" is the ability to semi-dislocate the shoulder bone.

When a person who

can do this presses their two palms together, pushing with their arms, their shoulder blades "jump out" looking like two wings! Its pretty amazing if you've never seen it!

42. **PTC taste test**

43. **Colorblindness:** Normal or colorblind

44. **Dominant eye:** You hold your fingers to make a circle, extend your arm, then with ***both*** eyes open you focus on an object that will fit inside the circle. Holding the circle still, you then alternately open and shut each eye. When the circle is still surrounding the object, that will be the dominant eye which is open. The object will jump out of the circle when viewed by the non dominant eye.

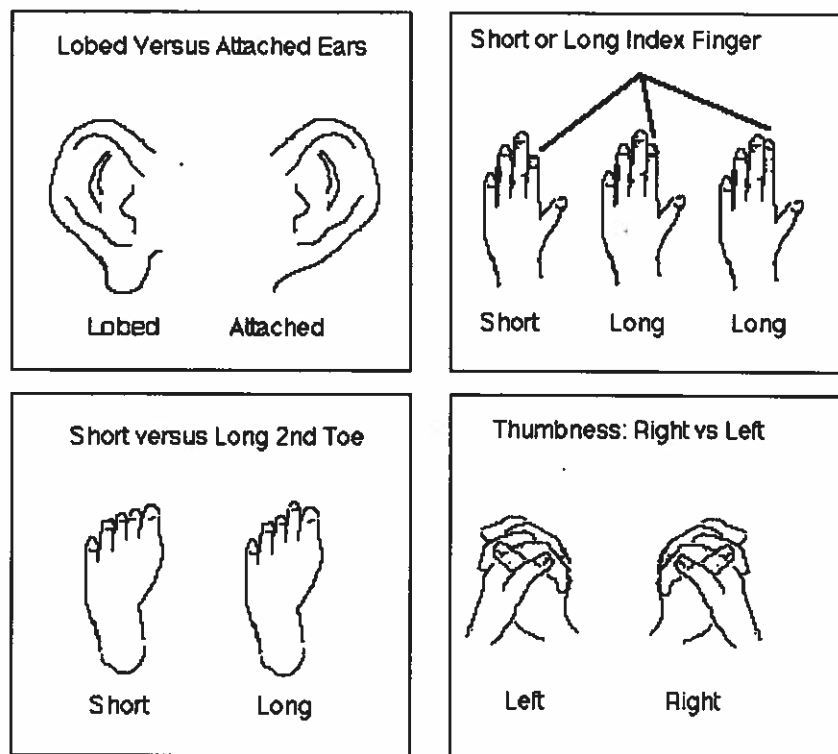
45. **Arm folding** -- which on top?

46. **Blood Type** (if known) (A, B, AB, O)

47. **Height** (cm)

48. **Span** (cm)

49. **Height/span**(to nearest 10th)



Hair color in humans is controlled by several different genes, including genes that code for the particular color of pigment (eumelanin is brown; pheomelanin is red) as well as others that code for how much pigment is deposited in the hair shaft.

In mammals, a protein known as the melanocortin-1 receptor (Mclr) is one of the key factors in regulating hair and skin color. The protein is involved in melanogenesis: the production of melanins. In most mammals, the protein promotes the formation of black/brown eumelanin. (We'll call this version of the gene "R"). But certain mutant forms of this same gene cause the production of reddish pheomelanin. (We'll call this mutant version "r".)

Rewind to a bit of basic genetics: Everyone has two copies of every gene, one from mom and one from dad. So in terms of the melanocortin gene, a person can have two copies of R, two copies of r, or one of each: s/he can have a "genotype" of RR, Rr or rr.

The brown pigment form of the gene is dominant to the recessive red version. This means that the R version **masks** the expression of the r version. So a person with either genotype RR or Rr will have the brown pigment. A person will have red hair only if his/her genotype is rr, lacking the R version to mask the r version.

Both you and your husband produce eumelanin (brown) in low concentration (which is why your hair is blonde, not brown; other genes control **how much** melanin is deposited in the hair shaft), but your genotypes **MUST** both be Rr if you produced an rr child. Your child got one copy of "r" from each of you.