

STUDENT WORKSHEET

The Genetics of Parenthood Data Sheet

Parents \_\_\_\_\_ and \_\_\_\_\_

Child's gender \_\_\_\_\_ Child's name \_\_\_\_\_

Fill in the data table as you determine each trait described in the Guidebook. Do not simply flip the coin for all traits before reading the guide, because some of the traits have special instructions. Believe it or not, it will make your life easier if you follow directions. In the last column, combine the information and draw what that section of the child's face would look like.

TRAIT	ALLELE FROM MOM	ALLELE FROM DAD	CHILD'S GENOTYPE	CHILD'S PHENOTYPE (written)	CHILD'S PHENOTYPE (drawn)	
Face Shape	A a	A a			face & chin	
Chin Size	B b	B b				
Chin Shape	C c	C c				
Cleft Chin	D d	D d				
Skin Color	E e F f G g	E e F f G g			hair	
Hair Color	H h I i J j K k	H h I i J j K k				
Red Tints	L1 L2	L1 L2				
Hair Type	M1 M2	M1 M2				
Widow's Peak	O o	O o				
Eye Color	P p Q q	P p Q q				eye & eyelashes
Eye Distance	R1 R2	R1 R2				
Eye Size	S1 S2	S1 S2				
Eye Shape	T t	T t				
Eye Slantedness	U u	U u				
Eyelashes	V v	V v				

#	TRAIT	ALLELE FROM MOM	ALLELE FROM DAD	CHILD'S GENOTYPE	CHILD'S PHENOTYPE (written)	CHILD'S PHENOTYPE (drawn)
16	Eye-brow Color	W <sub>1</sub> W <sub>2</sub>	W <sub>1</sub> W <sub>2</sub>			eyebrow
17	Eye-brow Thickness	Z z	Z z			
18	Eye-brow Length	A a	A a			
19	Mouth Size	B <sub>1</sub> B <sub>2</sub>	B <sub>1</sub> B <sub>2</sub>			mouth
20	Lip Thickness	C c	C c			
21	Dimples	D d	D d			
22	Nose Size	E <sub>1</sub> E <sub>2</sub>	E <sub>1</sub> E <sub>2</sub>			nose
23	Nose Shape	F f	F f			
24	Nostril Shape	G g	G g			
25	Earlobe Attachment	H h	H h			ear
26	Darwin's Earpoint	I i	I i			
27	Ear Pits	J j	J j			
28	Hairy Ears	K k	K k			
29	Cheek Freckles	L l	L l			
30	Forehead Freckles	M m	M m			

### QUESTIONS:

- What percentage does each parent contribute to a child's genotype?
- Explain how/what part of your procedures represents the process of meiosis.
- Using examples from this activity, explain your understanding of the following inheritance patterns:
  - dominant
  - recessive
  - incomplete dominance
  - polygenic
  - epistasis
- Compare the predicted phenotype ratio (Punnett squares) to the actual ratio (class data) for the following traits:
  - trait # 2 (chin size)
  - trait #8 (hair type)
- All the children had 2 heterozygous parents. Use the law of independent assortment to explain why there were no identical twins produced.