**Pedigree Worksheet Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 = Huntington’s

 Disease



I

 1 2

II 1 2 4 5

 3 6 7 8

III

 1 2 3 4 5

1. Which members of the family above are afflicted with Huntington’s Disease? **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

2. There are no carriers for Huntington’s Disease- you either have it or you don’t.

 With this in mind, is Huntington’s disease caused by a dominant or recessive trait? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. How many children did individuals I-1 and I-2 have? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. How many girls did II-1 and II-2 have? \_\_\_\_\_\_\_\_\_\_\_\_\_\_ How many have Huntington’s Disease? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. How are individuals III-2 and II-4 related? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ I-2 and III-5? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. The pedigree to the right shows a family’s pedigree

for Hitchhiker’s Thumb. Is this trait

dominant or recessive? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

I

1

2

7. How do you know? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

II

8. How are individuals III-1

2

1

4

3

and III-2 related? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

III

9. How would you name the 2 individuals that

4

3

2

1

have hitchhiker’s thumb? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

IV

10. Name the 2 individuals that were

3

2

1

carriers of hitchhiker’s thumb. \_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. Is it possible for individual IV-2 to be a carrier? \_\_\_\_\_\_\_\_\_\_\_ Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. The pedigree to the right shows a family’s pedigree

\*\*half-shaded = carrier of disease

I

for colorblindness. Which sex can be carriers of

colorblindness and not have it? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. With this in mind, what kind of trait is

II

colorblindness (use your notes)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14. Why does individual IV-7 have colorblindness?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

III

15. Why do all the daughters in generation II carry the

colorblind gene? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

IV

16. Name 2 IV generation colorblind males. \_\_\_\_\_\_\_\_\_

8

7

6

5

4

1

2

3

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Genetics Pedigree Worksheet**

A pedigree is a chart of a person’s ancestors that is used to analyze genetic inheritance of certain traits – especially diseases. The symbols used for a pedigree are:

 female, unaffected

 female, affected

 male, unaffected

 male, affected

* Siblings are placed in birth order from left to right and are labeled with numbers.
* Each generation is labeled with a Roman numeral.
	+ Example: we would name an individual II-3 if he/she was in the second generation and the 3rd child born

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

I

 1 2 3 4 5 6

II

 1 2 3 4 5 6 7 8 9

III

 1 2 3 4 5 6 7 8

Try to identify the genotypes of the following individuals using the pedigree above.

(homozygous dominant, homozygous recessive, heterozygous)

* III-3: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* II-1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* I-1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* II-4: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Is this trait dominant or recessive? Explain your answer.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. How can you know for sure that individuals II-3 and II-4 are heterozygous?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Brown eyes are a dominant eye-color allele and blue eyes are recessive. A brown-eyed woman whose father had blue eyes and whose mother had brown eyes marries a brown-eyed man whose parents are also brown-eyed. They have a son who is blue-eyed. Please draw a pedigree showing all four grandparents, the two parents, and the son. Indicate which individuals you are certain of their genotype and where there are more than one possibilities.

**Pedigree Worksheet KEY**

 = Huntington’s

 Disease



I

 1 2

II 1 2 4 5

 3 6 7 8

III

 1 2 3 4 5

1. Which members of the family above are afflicted with Huntington’s Disease? **I1, II2, II3, II7, III3**

2. There are no carriers for Huntington’s Disease- you either have it or you don’t.

 With this in mind, is Huntington’s disease caused by a dominant or recessive trait? **Dominant**

3. How many children did individuals I-1 and I-2 have? **6**

4. How many girls did II-1 and II-2 have? **2**  How many have Huntington’s Disease? **1 or 5**

5. How are individuals III-2 and II-4 related? **Uncle/Niece**  I-2 and III-5? **Grandma/Grandson**

6. The pedigree to the right shows a family’s pedigree

for Hitchhiker’s Thumb. Is this trait

dominant or recessive? **Recessive**

I

1

2

7. How do you know? **III1 and III2 do not have it**

**but their children do.**

II

8. How are individuals III-1

2

1

4

3

and III-2 related? **Cousins/Marriage**

III

9. How would you name the 2 individuals that

4

3

2

1

have hitchhiker’s thumb? **IV1 and IV3**

IV

10. Name the 2 individuals that were

3

2

1

carriers of hitchhiker’s thumb. **III1 and III2**

11. Is it possible for individual IV-2 to be a carrier? **Yes**  Why? **b/c parents were heterozygous**

12. The pedigree to the right shows a family’s pedigree

\*\*half-shaded = carrier of disease

I

for colorblindness. Which sex can be carriers of

colorblindness and not have it? **Females**

13. With this in mind, what kind of trait is

II

colorblindness (use your notes)? **Sexlinked/recessive**

14. Why does individual IV-7 have colorblindness?

**b/c mom was a carrier and dad was affected**

III

15. Why do all the daughters in generation II carry the

colorblind gene? **b/c dad was affected and its on the X**

IV

16. Name 2 IV generation colorblind males. **IV1, IV5**

8

7

6

5

4

1

2

3

**Pedigree Worksheet KEY**
**Genetics Pedigree Worksheet**

A pedigree is a chart of a person’s ancestors that is used to analyze genetic inheritance of certain traits – especially diseases. The symbols used for a pedigree are:

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I

 1 2 3 4 5 6

II

 1 2 3 4 5 6 7 8 9

III

 1 2 3 4 5 6 7 8

Try to identify the genotypes of the following individuals using the pedigree above.

(homozygous dominant, homozygous recessive, heterozygous)

* III-3: **Homozygous recessive**
* II-1: **Heterozygous**
* I-1: **Homozygous recessive**
* II-4: **Heterozygous**

1. Is this trait dominant or recessive? Explain your answer.

**It is a recessive trait because generation II does not have the disease and Generations I and II do have it.**

2. How can you know for sure that individuals II-3 and II-4 are heterozygous?

**Because their offspring have the disease so they are both carriers of it.**

3. Brown eyes are a dominant eye-color allele and blue eyes are recessive. A brown-eyed woman whose father had blue eyes and whose mother had brown eyes marries a brown-eyed man whose parents are also brown-eyed. They have a son who is blue-eyed. Please draw a pedigree showing all four grandparents, the two parents, and the son. Indicate which individuals you are certain of their genotype and where there are more than one possibilities.