

## Who's Your Daddy: Scene 1

(.....Theme music playing)

**Maury:** “Thank you for tuning in to the *Maury Show* and what a show we’ve got for you today,” (*camera focuses in closely on him*) “In our studio this morning, we have Trina. Folks, Trina has a big problem that she needs to share with us. Trina is married to John and they have three beautiful children. But she has a secret that she says she can’t bare to live with anymore.” (*positions his chair to face hers*) “What is this big secret, Trina?”

**Trina:** (*inhales deeply and sighs*) “Well Maury, I’m here today to tell my husband that our twins might not be his.” (*The audience moans and inaudibly comments in the background.*) “And, there’s more...” (*Trina wipes the tears from her eyes and continues to speak.*) “They might be from someone close to him instead.”

*The audience begins to uproar in disbelief. Maury raises his hands to bring order to the studio. The camera does a wide view of the unsympathetic crowd then focuses back on Trina and Maury sitting on the stage with an empty chair on the end.*

**Maury:** “Does your husband have any idea that you had an affair with his brother?”

**Trina:** “No, Maury, he thinks all three of them are his kids.” (*continues wiping tears from her eyes.*)

**Maury:** “Well, Trina, your husband is here today. Are you prepared to tell him this secret?”

**Trina:** “Yeah, I guess!”

**Maury:** “Then, let’s bring him out. John, come on out....”

*(...clapping and oohing...) John, a tall, muscular man with green eyes walks out onto the stage and takes a seat in the empty chair.*

**Maury:** (*expecting to receive a swift answer*) “Hello, John. Do you have any idea why you’re here today?”

**John:** (*looking concerned & speaking in a calm voice.*) “How are you Maury? I don’t know why I’m here ...but since I am on your show, I’m guessing it’s ‘cause Trina needs to tell me something that I probably don’t want to hear. She’d better hope it’s not bad!”

**Trina:** (*focusing her blue eyes on the floor*) “I can’t do this, Maury. I’m afraid the truth will destroy my family.”

**Maury:** “Trina, it’s only fair that you tell him the truth. Don’t you want to get this over

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with today? If you tell him now, you can move forward with your life and stop agonizing over this secret. Go ahead, turn to John, and tell him what you it is that you've been keeping a secret for so long."

*In a slow, hesitant motion, Trina lifts her eyes to meet John's eyes.*

**Trina:** "John, you know I love you, right?" *(The audience sends out another upheaval of boos to her. Maury raises his hands again.)* "Well, I wanted to tell you that our twins might not be yours."

*(...inaudible comments in the background) John leaps from his chair in disbelief and paces the stage peripatetically. Maury stands and begins to whisper into John's ear to help him gain self-control; John paces the floor a few more seconds, then retakes his seat and waits for more bad news. He leans forward and places his head into his hands and begins rubbing them through his curly locks of hair.*

**John:** "I know these kids are mine. If they are not, then prove it!"

**Maury:** "And with that said, we're going to take a quick commercial break. See you in two and two."

*What Maury neglected to mention before the show is that they didn't order the tests results from GenTech. Instead, he has another plan in mind to solve Trina's DNA mystery without technology.*

## **Who's Your Daddy: Scene 2**

**Maury:** “Okay, we’re back. Now, for another shocker, there’s something we didn’t tell our studio audience when we invited them here.” (*The spectators are curious.*) “Take a look at the person on the left and right of you; all of your neighbors are science majors and we need your help today.”

*The camera zooms in on the alert audience to catch the expressions of everyone as they realize that the show is more than just another paternity case and that the paternity of the children will therefore be determined by the studio audience today.*

**Maury:** “To my right, we have a diverse group of scientist from Morehouse College; the folks on my left are from Spellman College. And, this large group in the middle all come from Emory University. Every guest in our audience has experience in either molecular biology or genetics.”

*This announcement makes the audience more attentive.*

**Maury:** “We need you all to put on your super-scientist-thinking-caps and help us out today by using what you know about Gregor Mendel and R.C. Punnett.

*A show coordinator standing on the side of the stage begins to hand out folders containing copies of the paperwork that is needed to help Trina with her dilemma.*

**Dr. J.K. Haynes:** (*...sounds of papers shuffling*) “This is great. It appears to have everything we need.”

**Dr. George Jones:** “No, it seems like something is missing.”

**Maury:** “We’ve included the things that we thought would help. If you can think of anything else needed, let me know and I’ll get it for you. So, we’ll give you all some time to think of anything that you might need to help Trina and John? So let’s go to commercial again...”

### Who's Your Daddy: Scene 3

*(...theme music playing... the camera focused on Maury's face.)*

**Maury:** *(...papers shuffling and indistinct chatting)* “Thank you for tuning in to the Maury Show, today. Let's see what our scientist have come up with so far.”

*All of the groups are engaged in discussion on the things they need to determine the father of the two children. They converse about different kinds of materials used in reference to DNA and heredity.*

**Dr. Rena Jones:** “I know; we're missing the Punnett squares. We can't get anywhere without the aid of those.”

**Dr. Soojin Yi:** “That's true. And we'll need some pertinent information from both John and Trina.”

**Trina:** *(with a worried look on her face)* “What kind of information?”

**Dr. J.K. Haynes:** *(deep voiced)* “Oh, we'll need to know some things about the *mtDNA* and the y-linked traits and also which traits are dominant and which are recessive. We'll also need information about the children.”

**Trina:** *(frowning and anxious)* “Like what?”

**Dr. George Jones:** *(not realizing that Trina is clueless)* “Well, like their genotypes and phenotypes. Let me put it to you like this. We need to know some of their characteristics.”

**Trina:** “What?” *(She doesn't understand the relevance of needing this information. If these super-scientists probe too much, Trina will be forced to tell her husband who is the possible father of her children; that will complicate things more.)*

**Dr. George Jones:** *(with an echo of confidence in his tone)* “Why this is simply the internally coded information and the...”

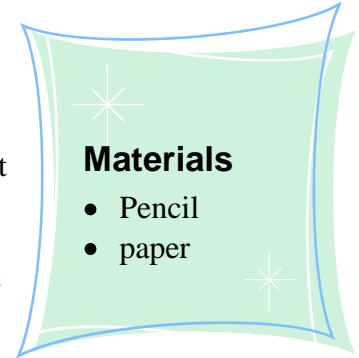
**Dr. Rena Jones:** “Let's not get too technical. A part of being a good scientist is being able to explain your work without assuming everyone knows what you're talking about. John, just provide us with the information that we need and we will get this figured out for you.”

**Maury:** “Okay, we've included photos of the children in your packets, and we've listed some of the things about them that you will need to know. And with that said, we're going to take a commercial break and we'll be right back.”

## PBL Tracing Traits Assignment Worksheet 1

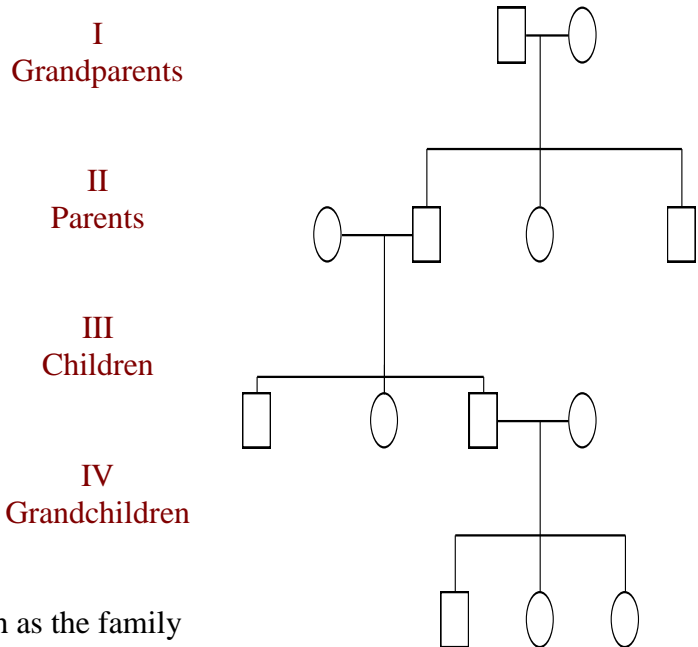
### Tracing Traits

Have you ever wondered about traits that you inherited from your parents? You know that traits are passed from generation to generation, but do you have a trait that neither of your parents has? In this project, you will develop a family tree, or pedigree, similar to the one shown in the diagram below. You will trace an inherited trait through your own family or another family who can help you with the information you will need. Next you will survey a family to determine some of the traits they share. Finally, you will trace a trait to determine how it has passed from generation to generation.



#### Procedure

- The diagram at right shows a family history with four generations. On a separate piece of paper, draw a similar diagram of the family you have chosen. Include as many family members as possible, such as grandparents, parents, children, and grand children. Use circles to represent the females in the family and squares to represent the males. You may include other information if you wish, such as the family member's name, birthdates, or picture. Other members of the family may be helpful in providing the information you need.
- Survey each of the family members shown in your family tree to determine which have the dominant form and which have the recessive form of the trait described in the chart. Ask them if they have hair on the middle segment of their fingers. Be sure to explain to each person that it is perfectly normal to have either the dominant or recessive trait.



## PBL Tracing Traits Assignment Worksheet 2

### Tracing Traits

1. Draw a chart similar to the one below. For each family member that you interviewed, write each their names in the appropriate square.

<u>Dominant Trait</u>	<u>Recessive Trait</u>	<u>Family members with the dominant trait</u>	<u>Family members with the recessive trait</u>
Hair is present on the middle segment of finger ( <i>H</i> )	Hair is absent on the middle segment of fingers ( <i>h</i> )		

2. Trace the trait described in the chart throughout the family tree you diagrammed in step 1. Do this by shading or coloring the square or circle symbols or the family member who demonstrated the dominant form of this trait. Leave the other symbols unshaded.

### Analysis

3. What percentages of family members demonstrate the dominant form of the trait? Calculate this by counting the number of people who have the dominant form of the trait and dividing this number by the total number of family members you surveyed. Then multiply you answer by 100. An example is done for you to the right

Example: Calculating percentages

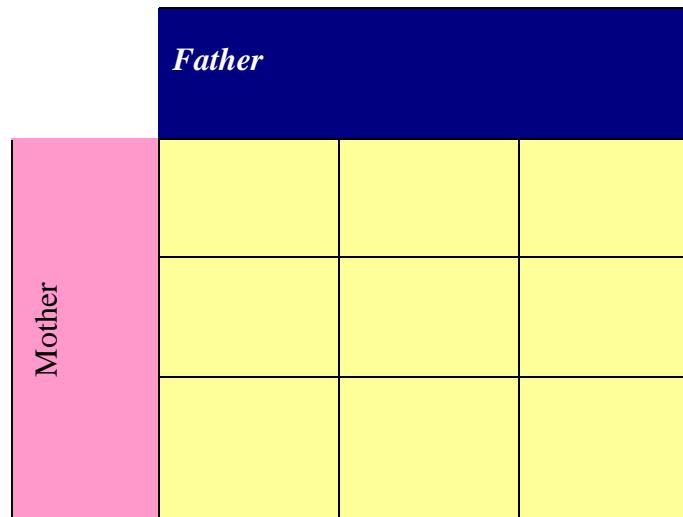
$$\frac{10 \text{ people with trait}}{20 \text{ people surveyed}} = \frac{1}{2}$$

$$\frac{1}{2} = .50 \times 100 = 50\%$$

4. What percentages of the family members demonstrate the recessive form of the trait? Why doesn't every family member have the dominant trait?
5. Compare you percentage calculation for the dominant trait with the calculations of you classmates. Are there some families with a higher percentage of the dominant trait?
6. Choose one of the family members who demonstrated the recessive form of the chosen trait. What must be the genotype of this individual? How did this person get each of the alleles that make up his or her genotype? What are the possible genotypes for the parents of this individual? Are there any brothers or sisters? Do they show the dominant or recessive trait?

**PBL Tracing Traits Assignment Worksheet 3 Homework**

1. What is the name of the square below? Use it to illustrate how you might have inherited the recessive trait. Inside square, write the genotype of the person you have chosen to study (in this case, write your own name) in the bottom right-hand corner. Try to determine the genotype of the parents. HINT: There may be more than one possible genotype. Which allele (dominant or recessive) may have been passed on from a parent if there is a brother or sister who shows the dominate trait?



2. What are genotypes?
3. What are phenotypes?
4. What are the possible genotype(s) of a tall plant?

**PBL Punnett Square Assignment Worksheet 1**

Can you figure out who the daddy is? Here's a hint, use the Punnett squares below and designate letters which will represent the genes/traits. You must choose which traits belong to Trina and which belong to the possible fathers. (Only Trina will appear on both squares)



1. What are the possible genotype(s) of Trina's offspring?
2. What are the possible genotype(s) of John's offspring?
3. What are the possible genotype(s) of Jack's offspring?
4. What would be the phenotype of Trina?
5. What would be the phenotype of John?
6. What would be the phenotype of Jack?



**PBL Punnett Square Assignment Worksheet 2 Homework**

1. What is the probability that the twins will have green eyes?
2. What is the probability that the twins will have blue eyes?
3. What is the probability that the twins will have hazel eyes?

**Can you answer the questions above? Here's how:**

Draw a Punnett square - 4 small squares in the shape of a window. Write the possible gene(s) of one parent across the top and the gene(s) of the other parent along the side of the Punnett square. Write down the genotypes of each parent. List the genes that each parent can contribute. Write the possible gene(s) of one parent across the top and the gene(s) of the other parent along the side of the Punnett square. Capital letters represent dominant traits, and lowercase letters represent recessive traits

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## **PBL Fingerprinting Assignment Worksheet Pt. I**

*“Who dunnit?”* If you want to use fingerprints to solve crimes, you must have a way to describe and sort and find prints that are similar to the one you find at a crime scene. Can we invent a way to classify fingerprints? Today we are going to look at some of our fingerprints and see how we might sort them into categories, just as fingerprint specialists do.

## **PBL Fingerprinting Assignment Worksheet Pt. II**









### Taking a Print

1. Rub a small dark area with a pencil point on a sheet of white paper.
2. Press and rub your right index finger in the pencil-lead dust.
3. Place the sticky side of a piece of transparent tape on the dusted finger.
4. Take the tape with the fingerprint and tape it to a clean sheet of white paper.
5. Label the fingerprint to identify which finger you have printed.
6. Continue the process until you have all ten fingers printed.

Fingerprints may also be taken by pressing one finger at a time into an inkpad and then pressing and rolling each finger onto a sheet of white paper. Be sure to label each print. The prints may smudge if not done carefully. Also be sure clothing is protected.

**PBL Fingerprinting Assignment Worksheet**

**Fingerprint Patterns**

<b>Left-leaning loop</b>	<b>Right-leaning loop</b>	<b>Whorl</b>
		
<b>Double loop</b>		<b>Double loop with central pocket</b>
		
<b>Plain arch</b>	<b>Tented arch</b>	<b>Arch with loop &amp; scar</b>
		

## Who's Your Daddy: Self/Peer Evaluation Sheet

Scene 1				
<i>Group Member Name</i> <small>(Place a * by your own name)</small>	<i>IT</i>	<i>AC</i>	<i>CTM</i>	<i>Total</i>
Scene 2				
<i>Group Member Name</i> <small>(Place a * by your own name)</small>	<i>IT</i>	<i>AC</i>	<i>CTM</i>	<i>Total</i>
Scene 3				
<i>Group Member Name</i> <small>(Place a * by your own name)</small>	<i>IT</i>	<i>AC</i>	<i>CTM</i>	<i>Total</i>

Evaluating Criteria

**Interactions with Teammates (IT):**

- \* Respectful of all opinions
- \* Listens actively to others' ideas
- \* Stays on tasks, aids in clarifying issues

**Accountability (AC):**

- \* Actively participates in group learning
- \* Shares responsibility with team members
- \* Self-directed learner

**Contributing Team Member (CTM):**

- \* Contributes valuable insights in clear concise manner in group learning
- \* Gathers relevant information
- \* Utilizes credible references

- Score**
1. Never
  2. Seldom
  3. Sometimes
  4. Usually
  5. Always

## Who's Your Daddy?: Box Chart

Scene 1

<i>What Do We Already Know?</i> <i>(Data)</i>	<i>What Do We Want to Know?</i> <i>(Questions)</i>
<i>What Do We Think We Know?</i> <i>(Hypotheses)</i>	<i>What Do We Need To Know?</i> <i>(Learning Issues)</i>