GENETIC DISORDER RESEARCH PROJECT

<u>Project Description</u>: You will be creating an informational project about one Genetic Disorder of your choice (Choices are listed in the following pages) There is not much information out there about the genetic disorders so your project is meant to be informative. Be sure to be respectful of the information about the disease, as it is not to be taken lightly. Your project must include the required information below;

Items included your project:

- General information about Karyotyping
- Information about genetic disorder
- Symptoms of the disorder
- Diagnosis
- Treatment
- Statistics
- What it may look like

DIRECTIONS:

- 1. SELECT A GENETIC DISORDER
- 2. GET IT APPROVED BY MRS. PINCA
- 3. PROJECT CAN BE COMPLETED IN 1 OF 5 WAYS
 - a. News Article
 - b. **Poster**
 - c. Children's Book
 - d. Digital Presentation:
 - e. Video
- 4. Due at the end of class on April 12^{TH} .

Genetics Disorder Research Project

This unit project focuses on how genetics affects humans directly. Many people are affected by genetic disorders; you may even have some family members or friends with some of these diseases. I suggest that you choose a disorder that affects someone you know or intrigues you because it is strange or interesting. The goal is to research the disorder and orally present information and recent research through a group PowerPoint.

Genetic Disorder	Description	Websites		
Alzheimer's Disease	A progressive brain disorder that gradually destroys a person's memory and ability to learn, reason, make judgments, and communicate.	http://www.ygyh.org/?syndrome http://www.alz.org http://www.alzheimers.org http://www.alzheimers.org.uk http://www.nlm.nih.gov/medlineplus/alzheimersdisease http://www.mamashealth.com/Alzheimers http://www.alzforum.org http://www.alzinfo.org/		
Angelman Syndrome/ Prader-Willi Syndrome	Prader-Willi syndrome is an uncommon inherited disorder characterized by mental retardation, decreased muscle tone, and life-threatening obesity. When this genetic mutation is inherited from the mother, Angelman Syndrome arises which causes neurological problems including jerky movements and spontaneous laughter.	http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=gnd.section.23 http://www.ninds.nih.gov/disorders/angelman/angelman http://ghr.nlm.nih.gov/condition=angelmansyndrome http://www.angelman.org http://www.pwsausa.org http://www.pwsresearch.org/default.html http://www.ncbi.nlm.nih.gov/books/bv.fcgi?call=bv.ViewShowSection&rid=gnd.section.165		
Celiac Disease (Celiac Sprue)	A disease that triggers an autoimmune response that causes damage to the	http://www.nlm.nih.gov/medlineplus/celiacdisease http://www.csaceliacs.org/celiac		

Cri du chat Syndrome (Cat's Cry Syndrome, Monosomy 5p)	small intestine when certain types of protein, called gluten, are eaten. Cri du chat syndrome is a group of symptoms that result from missing a piece of chromosome number 5. The syndrome's name is based on the infant's cry, which is high pitched and sounds like a cat.	http://digestive.niddk.nih.gov/ddiseases/pubs/celiac http://www.gluten.net/celiac http://www.labtestsonline.org/understanding/analytes/celiac http://www.celiac.org http://www.icomm.ca/geneinfo/criduchat http://ghr.nlm.nih.gov/condition=criduchatsyndrome http://gslc.genetics.utah.edu/units/disorders/karyotype/criduchat.cfm http://www.madisonsfoundation.org http://www.ncbi.nlm.nih.gov/entrez/query
Cystic Fibrosis	A recessive genetic disease in which the exocrine glands of afflicted individuals produce abnormally thick mucus that block the intestines and lung passageways. People with the disease have a very hard time breathing and often die from suffocation.	http://members.tripod.com/%7Eyenial/students.html www.ygyh.org/?syndrome http://www.cff.org/home http://www.ncbi.nlm.nih.gov/books/bv.fcgi?call=bv.ViewShow Section&rid=gnd.section.242 http://www.cfri.org/home http://www.nlm.nih.gov/medlineplus/ency/article/000107.htm http://learnaboutcf.tripod.com http://learnaboutcf.tripod.com
Diabetes, type 1 (Juvenile Diabetes) and Type 2	Diabetes is a chronic metabolic disorder that adversely affects the body's ability to manufacture and use insulin, a hormone necessary for the conversion of food into energy.	http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=gnd.section.22 http://diabetes.niddk.nih.gov/dm/pubs/overview/index.htm http://familydoctor.org/480.xml http://www.jdrf.org http://www.diabetes.org/home.jsp http://ndep.nih.gov
Down Syndrome	Down syndrome is a chromosome abnormality,	www.ygyh.org/?syndrome

(Trisomy	usually due to an extra	http://www.ndss.org		
21)	copy of the 21st chromosome. This	http://www.nads.org		
	syndrome usually, although not always, results in mental	http://www.down-syndrome.info		
	retardation and other conditions.	http://www3.ncbi.nlm.nih.gov/entrez/dispomim.cgi?id=19068		
		http://www.nas.com/downsyn/benke.html		
Duchenne & Becker	The muscular dystrophies are a group of genetic	www.ygyh.org/?syndrome		
Muscular	diseases characterized by progressive weakness and degeneration of the	http://www.ncbi.nlm.nih.gov/disease/DMD.html http://www.mdausa.org		
Dystrophy	skeletal muscles that control movement.	http://www.mayoclinic.com/invoke.cfm?id=DSOO2OO		
		http://www.nlm.nih.gov/medlineplus/musculardystrophy.htm		
		http://www.parentprojectmd.org/news/latest/index.html		
Fragile X	Fragile X is a	www.ygyh.org/?syndrome		
Syndrome	hereditary/genetic condition caused by a mutation on the X chromosome. It can cause learning disabilities, or severe intellectual complications including autism.	www.fragilex.org		
		http://www.fraxa.org		
		http://www.ncbi.nlm.nih.gov/disease/FMR1.html		
		http://www.nlm.nih.gov/medlineplus/ency/article/001668.htm		
		http://www.nfxf.org/html		
Hemophilia	Hemophilia is a rare inherited bleeding disorder	www.ygyh.org/?syndrome		
A or B	that causes blood problems in blood clotting.	http://www.hemophiliq.org/home		
	in proof dotting.	http://www.wfh.org		
		http://www.ncbi.nlm.nih.gov/disease/hemoA.html		
		www.hemophiliagalaxy.com		
		http://www.nlm.nih.gov/medlineplus/hemophilia.html		
		http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=gnd.section.9		
Huntington Disease	A hereditary, degenerative brain disorder for which	www.hdsa.org		
v iocqoc	there is no effective treatment or cure. HD	www.ygyh.org/?syndrome		

	slowly diminishes the affected individual's ability	http://www.hdac.org		
	to walk, think, talk and reason.	http://www.ncbi.nlm.nih.gov/disease/Huntington.html		
		http://www.huntington-assoc.com		
		http://www.hdfoundation.org		
	In addition to occasional	http://hdlighthouse.org		
Klinefelter	http://www.aaa.dk/TURNER/ENGELSK/INDEX.HTM			
Syndrome (XXY	breast enlargement, lack of facial and body hair, and a	http://www.nichd.nih.gov/publications/pubs/klinefelter.htm		
Syndrome)	rounded body type, XXY males are more likely than	http://www.genetic.org/ks/scvs/47xxy.htm		
•	other males to be overweight, and tend to be taller than their fathers and	http://www.nlm.nih.gov/medlineplus/klinefelterssyndrome.hml		
	brothers.	http://ghr.nlm.nih.gov/condition=klinefeltersyndrome		
		http://www.ksq-uk.co.uk/		
		http://47xxy.org/		
Maple Syrup	Maple Syrup Urine Disease is an inherited disorder so named because one of its first signs is urine that has an odor reminiscent of maple syrup.	http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=gnd.section.2		
Urine Disease		http://www.meadjohnson.com/metabolics/maplesyrupurinedease.html		
		http://www.msud-support.org/		
		http://www.nlm.nih.gov/medlineplus/ency/article/000373.h		
		http://www.savebabies.org/diseasedescriptions/msud.php		
		http://rarediseases.about.com/od/rarediseases1/a/062004.ht		
Obesity	Obesity is an excess of body fat that frequently results in a significant impairment of health.	http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=gnd.section.2		
		http://www.cdc.gov/genomics/info/perspectives/obesity.htm		
		http://www.nlm.nih.gov/medlineplus/obesity.html		
		http://www.obesite.chaire.ulaval.ca/genes.html		
		http://www.cancer.gov/newscenter/obesity1		
		http://www.niddk.nih.gov/		

Parkinson's	Parkinson's disease is a	http://www.ninds.nih.gov/disorders/parkinsons_disease/parkin
Disease	motor system disorder which is the result of the	ons_disease
,	loss of dopamine-	http://www.apdaparkinson.org/user/index.asp
	producing brain cells. Parkinson's can cause	http://www.parkinson.org/site/pp.asp?c=9dJFJLPwB&b=71117
	tremors, rigidity, slowness of movement and postural instability.	http://www.michaelifox.org/
		http://www.parkinsonalliance.org/
		http://altrue.he.net/~thepi/site/parkinson/
Phenylketon	Phenylketonuria is a	www.ygyh.org/?syndrome
urią (PKU)	hereditary disorder in which the amino acid phenylalanine isn't	http://www.pkunews.org/
	properly metabolized. As a result, the amino acid can	http://www.ncbi.nlm.nih.gov/disease/Phenylketo.html
	build up to dangerous	http://www.mayoclinic.com/invoke.cfm?id=DSOO514
	levels in the blood and other tissues, causing mental retardation and	http://www.pkunetwork.org
	other serious health problems.	http://www.nlm.nih.gov/medlineplus/tutorials/pku
	providing.	http://www.savebabies.org/diseasedescriptions/pku.php
		http://www.marchofdimes.com/professionals
Polycystic	Polycystic kidney disease is	www.ygyh.org/?syndrome
Kidney	a genetic disorder characterized by the	http://www.pkdcure.org/home.html
Disease	growth of numerous cysts in the kidneys. The cysts	http://www.ncbi.nlm.nih.gov/disease/PKD.html
	can reduce kidney function and lead to kidney failure.	http://kidney.niddk.nih.gov/kudiseases/pubs/polycystic
	,	http://familydoctor.org/142.xml
		http://ghr.nlm.nih.gov/condition=polycystickidneydisease
		http://www.kidney.org
Sickle Cell	Sickle cell anemia is an	www.ygyh.org/?syndrome
Anemia	inherited disorder that affects hemoglobin, a	http://www.ncbi.nlm.nih.gov/disease/sickle.html
(Sickle Cell Disease)	protein that enables red blood cells to carry oxygen	http://www.sicklecellinfo.net
Discase/	to all parts of the body, resulting in a low number	http://www.sicklecelldisease.org/about_scd/faqs.phtml
	of red blood cells and periodic pain.	http://www.ascaa.org

		http://ghr.nlm.nih.gov/ghr/disease/sicklecellanemia
Tay-Sachs Disease	A rare inherited disorder that causes progressive destruction of nerve cells	www.ygyh.org/?syndrome http://www.ntsad.org
	in the brain and spinal cord, found to be more common in people of Ashkenazi Jewish heritage than in those with other backgrounds.	http://www.marchofdimes.com/professionals/681_1227.asp http://www.genome.gov/page.cfm?pageID=10001220 http://ghr.nlm.nih.gov/condition=taysachsdisease
		http://www.ninds.nih.gov/disorders/taysachs/taysachs http://kidshealth.org/parent/system/medical/genetic_counsel ng
Triple–X Syndrome (Trisomy X)	A rare chromosomal genetic syndrome with one or more extra X chromosomes, leading to XXX (or more rarely XXXX or XXXXX), instead of the usual XX. These people are females and can be unaffected, or may suffer from problems such as infertility and reduced mental acuity.	http://www.ncbi.nlm.nih.gov/disease/Tay_Sachs http://www.aaa.dk/TURNER/ENGELSK/INDEX http://www.mayoclinic.com/invoke.cfm?retryCount=2&id=Al 00351 http://ghr.nlm.nih.gov/condition=triplexsyndrome http://www.madisonsfoundation.org http://www.med.umich.edu/1libr/yourchild/xxxsyn http://www.wrongdiagnosis.com/t/triple_x_syndrome/intro
Turner's Syndrome	Turner syndrome is a chromosomal condition that exclusively affects girls. It occurs when one of the two X chromosomes normally found in females is missing or incomplete.	http://www.aaa.dk/TURNER/ENGELSK/INDEX http://www.turner-syndrome-us.org/ http://www.tss.org.uk/ http://www.turnersyndrome.ca/ http://turners.nichd.nih.gov/ http://www.turnerssyndrome.org.au/
XYY Syndrome	A condition in which males have two Y chromosomes; side effects include being more physically active and having a tendency to delayed mental	http://www.aaa.dk/TURNER/ENGELSK/INDEX http://www.ddhealthinfo.org/ggrc/doc2.asp?ParentID=5199 http://my.webmd.com/hw/mens_conditions/nord812.asp

	http://www.nlm.nih.gov/medlineplus http://www.rarediseases.org	

Group Names: Disord	er:
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Genetics Disorder Grading Rubric

Presentation Requirements	Earned Points	Possible Points	Comments
Introduction		20	
✓ Name the disorder			
✓ Introduce team members			
Definition of the disorder		20	
✓ What happens to the body?			
✓ What part of the body does it			
generally affect?			
Description of the symptoms		10	
✓ List all of the possible effects on			
the body			
Cause of the disorder		20	
✓ What happens in the body to			
cause the disease?			
✓ Is it a mutation? A genetic			
tendency triggered by other			
factors?			
How the disorder is inherited		30	
✓ Is it sex-linked?			
✓ Is there a particular chromosome			
it is located on?			
✓ Is it recessive or dominant?			
How the disorder is treated		10	
✓ Medications? Gene therapy?			
How the disorder is diagnosed		10	
✓ What tests are done? Is genetic			
counseling an option?			
How many and what type of people are		20	
likely to have the disorder			
✓ Is it more common in a certain			
group of people?			
✓ How common is it?			
Application of research article		10	
✓ What new information did you			
learn from your research?			
Total Points Earned		150	

Genetics Disorder Topic Sheet

1.	What genetic disorder do you want to research?
2.	Who is your partner?
	GENETICS DISORDER TOPIC SHEET
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	CENTED DISCREEN TOTIC STILL
1.	What genetic disorder do you want to research?
2.	Who is your partner?
	GENETICS DISORDER TOPIC SHEET
	GLINETICS DISORDER TOPIC SHEET
1.	What genetic disorder do you want to research?
2.	Who is your partner?

Genetics Disorder Project Sign-Up

Partner Names	Genetic Disorder	Article	Presentation Format

GENETICS DISORDER RESEARCH SHEET

Research Site:			

Presentation Requirements	Research
Definition of the disorder	
✓ What happens to the body?	
✓ What part of the body does it generally affect?	
Description of the symptoms	
✓ List all of the possible effects on the body	
Cause of the disorder	
✓ What happens in the body to cause the disease?	
✓ Is it a mutation? A genetic tendency triggered by	
other factors?	
How the disorder is inherited	
✓ Is it sex-linked?	
✓ Is there a particular chromosome it is located on?	
✓ Is it recessive or dominant?	
How the disorder is treated	
✓ Medications? Gene therapy?	
How the disorder is diagnosed	
✓ What tests are done? Is genetic counseling an	
option?	
How many and what type of people are likely to have the	
disorder	
✓ Is it more common in a certain group of people?	
✓ How common is it?	

Research Site:

Presentation Requirements	Research
Definition of the disorder	
✓ What happens to the body?	
✓ What part of the body does it generally affect?	
Description of the symptoms	
✓ List all of the possible effects on the body	
Cause of the disorder	
✓ What happens in the body to cause the disease?	
✓ Is it a mutation? A genetic tendency triggered by	
other factors?	
How the disorder is inherited	
✓ Is it sex-linked?	
✓ Is there a particular chromosome it is located on?	
✓ Is it recessive or dominant?	
How the disorder is treated	
✓ Medications? Gene therapy?	
How the disorder is diagnosed	
✓ What tests are done? Is genetic counseling an	
option?	
How many and what type of people are likely to have the	
disorder	
✓ Is it more common in a certain group of people?	
✓ How common is it?	

Research Site:			
NCSCATCH SICC:			

	Presentation Requirements	Research
Definitio	n of the disorder	
✓	What happens to the body?	
✓	What part of the body does it generally affect?	
Descripti	on of the symptoms	
✓	List all of the possible effects on the body	
Cause of	the disorder	
✓	What happens in the body to cause the disease?	
✓	Is it a mutation? A genetic tendency triggered by	
	other factors?	
How the	disorder is inherited	
✓	Is it sex-linked?	
✓	Is there a particular chromosome it is located on?	
✓	Is it recessive or dominant?	
How the	disorder is treated	
✓	Medications? Gene therapy?	
How the	disorder is diagnosed	
✓	What tests are done? Is genetic counseling an	
	option?	
How ma	ny and what type of people are likely to have the	
disorder		
✓	Is it more common in a certain group of people?	
✓	How common is it?	

Research Si	ite.		
incocarcii oi	ICC.		

Presentation Requirements	Research
Definition of the disorder	
✓ What happens to the body?	
✓ What part of the body does it generally affect?	
Description of the symptoms	
✓ List all of the possible effects on the body	
Cause of the disorder	
✓ What happens in the body to cause the disease?	
✓ Is it a mutation? A genetic tendency triggered by	
other factors?	
How the disorder is inherited	
✓ Is it sex-linked?	
✓ Is there a particular chromosome it is located on?	
✓ Is it recessive or dominant?	
How the disorder is treated	
✓ Medications? Gene therapy?	
How the disorder is diagnosed	
✓ What tests are done? Is genetic counseling an	
option?	
How many and what type of people are likely to have the	
disorder	
✓ Is it more common in a certain group of people?	
✓ How common is it?	

Genetics Disorder Article Worksheet

~DIRECTED READING THINKING ACTIVITY~

<u>Predicting</u>: Before you read the article focused on your genetic disease, answer these questions. Choose one person to be the recorder.

What is the title of the article?
What journal (magazine) is the article found in?
WHAT DO YOU <u>PREDICT</u> THE ARTICLE IS ABOUT, JUST BY LOOKING AT THE TITLE, GRAPHICS, AND THE FIRST SENTENCE? • • • • • • • • • • • • • • •
What question or questions do you <u>Predict</u> the article will try to answer? • □ • □ • □ • □
NG:
READ THE ARTICLE IN YOUR LARGE GROUP; TAKE TURNS HAVING ONE PERSON READ A PARAGRAPH OUT LOUD AND WRITE DOWN NEW INFORMATION YOU LEARNED ABOUT YOUR DISORDER. • • • • • • • • • • • • • • • • • • •
Predictions:
LOOK AT THE PREDICTING SECTION LIST THE PREDICTIONS THAT WERE CORRECT ABOUT THE ARTICLE.

Genetics Disorder Self Evaluation

Presentation Requirements	Cumulative Research	Points
Definition of the disorder What happens to the body? What part of the body does it generally affect? Sites:		20
Description of the symptoms List all of the possible effects on the body Sites:		10
Cause of the disorder What happens in the body to cause the disease? Is it a mutation? A genetic tendency triggered by other factors? Sites:		20
How the disorder is inherited Is it sex-linked? Is there a particular chromosome it is located on? Is it recessive or dominant? Sites:		30
How the disorder is treated Medications? Gene therapy? Sites:		10
How the disorder is diagnosed What tests are done? Is genetic counseling an option? Sites:		10
How many and what type of people are likely to have the disorder Is it more common in a certain group of people? How common is it? Sites:		20
Application of research article What new information did you learn from your research? Resource:		10
Total Points Earned		130

Genetics Disorder Job Worksheet

Partner	Slides to Make & Present in Given Order
1	<u>Title Slide</u> : Project Title, team members
	Definition Slide: What happens to body; part of body affected?
2	Symptom Slide: List of all effects on body
	Cause Slide: What happens in body to cause disease; Mutation? Genetic tendency
	triggered by other factors?
3	Inherited Slide: Sex-linked-yes or no; particular chromosome; recessive or
	dominant?
	<u>Treatment Slide</u> : Medications? Gene therapy?
4	<u>Diagnostic Tests Slide</u> : What tests are done; genetic counseling?
	Frequency in Population Slide: More common in certain group; how common is
	it?
1	Article Slide: New information found from research

Genetics Disorder Job Worksheet

Partner	Slides to Make & Present in Given Order
1	<u>Title Slide</u> : Project Title, team members
	<u>Definition Slide</u> : What happens to body; part of body affected?
2	Symptom Slide: List of all effects on body
	Cause Slide: What happens in body to cause disease; Mutation? Genetic tendency
	triggered by other factors?
3	Inherited Slide: Sex-linked-yes or no; particular chromosome; recessive or
	dominant?
	<u>Treatment Slide</u> : Medications? Gene therapy?
4	<u>Diagnostic Tests Slide</u> : What tests are done; genetic counseling?
	Frequency in Population Slide: More common in certain group; how common is
	it?
1	Article Slide: New information found from research

Genetics Disorder Job Worksheet

Partner	Slides to Make & Present in Given Order
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2	Symptom Slide: List of all effects on body
	Cause Slide: What happens in body to cause disease; Mutation? Genetic tendency
	triggered by other factors?
3	Inherited Slide: Sex-linked-yes or no; particular chromosome; recessive or
	dominant?
	<u>Treatment Slide</u> : Medications? Gene therapy?
4	<u>Diagnostic Tests Slide</u> : What tests are done; genetic counseling?
	Frequency in Population Slide: More common in certain group; how common is
	it?
1	Article Slide: New information found from research

Genetics Disorder Power Point Checklist

Team Members:		
Canatia Disautar		

✓	Slides to Make & Present in Given Order
	<u>Title Slide</u> : Project Title, team members
	<u>Definition Slide</u> : What happens to body; part of body affected
	Symptom Slide: List of all effects on body
	<u>Cause Slide</u> : What happens in body to cause disease; mutation? Genetic tendency triggered by other factors?
	Inherited Slide: Sex-linked-yes or no; particular chromosome; recessive or dominant?
	<u>Treatment Slide</u> : Medications? Gene therapy?
	<u>Diagnostic Tests Slide</u> : What tests are done; genetic counseling?
	Frequency in Population Slide: More common in certain group; how common it is
	Article Slide: New information found from research

Genetics Disorder Power Point Checklist

Team Members:	 	
Genetic Disorder: _	 	

✓	Slides to Make & Present in Given Order		
	<u>Title Slide</u> : Project Title, team members		
	<u>Definition Slide</u> : What happens to body; part of body affected		
	Symptom Slide: List of all effects on body		
	<u>Cause Slide</u> : What happens in body to cause disease; mutation? or genetic tendency triggered by other factors?		
	Inherited Slide: Sex-linked-yes or no; particular chromosome; recessive or dominant?		
	Treatment Slide: Medications? Gene therapy?		
	<u>Diagnostic Tests Slide</u> : What tests are done; genetic counseling?		
	Frequency in Population Slide: More common in certain group; how common is it?		
	Article Slide: New information found from research		

Genetic Disease:	Group Names:	Grader's Name:
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Genetics Disorder Peer Review

Presentation Requirements	Earned Points	Possible Points	Comments
Introduction		20	
✓ Name the disorder			
✓ Introduce team members			
Definition of the disorder		20	
✓ What happens to the body?			
✓ What part of the body does it			
generally affect?			
Description of the symptoms		10	
✓ List all of the possible effects on the			
body			
Cause of the disorder		20	
✓ What happens in the body to cause			
the disease?			
✓ Is it a mutation? A genetic tendency			
triggered by other factors?			
How the disorder is inherited		30	
✓ Is it sex-linked?			
✓ Is there a particular chromosome it is			
located on?			
✓ Is it recessive or dominant?			
How the disorder is treated		10	
✓ Medications? Gene therapy?			
How the disorder is diagnosed		10	
✓ What tests are done? Is genetic			
counseling an option?		20	
How many and what type of people are likely		20	
to have the disorder			
✓ Is it more common in a certain group			
of people? ✓ How common is it?			
Application of research article		10	
✓ What new information did you learn		10	
from your research?			
noni your resegren:			
Total Points Earned		150	
. O tq O II/O Eq. I/Oq			

What did you like about their presentation?

What could this group improve on?