Name:
Hour:

Cell Division Tic-Tac-Toe

The Task:

Three assignments on the tic-tac-toe board will be chosen. These projects will need to be completed in a row – diagonally, vertically, or horizontally. All three assignments will be added together for a mastery grade. Each section will be worth 20 points, for a total of 80 points.

Project One: Mitosis
Mitosis is an intricate process that our body cells go through in order to make exact replicas of our cells. This project requires you to explain the mechanisms of mitosis.
Include:

- __ Why it is important to make exact replicas of our cells
- __ Type of cell mitosis occurs in (body or sex cells)
- __ Stages of mitosis
- __ Number of cells made with number of chromosomes
- __ What can happen if mitosis goes wrong

Project Two: Meiosis
Meiosis is an extremely important process that allows us to make sex cells that are genetically different from our parents.
Include:

- __ Why it is important to make genetically different cells
- __ Type of cell meiosis occurs in (body or sex cells)
- __ Stages of Meiosis
- __ Number of cells made with number of chromosomes
- __ What can happen if mitosis goes wrong

Project Three: Comparing/Contrasting Mitosis and Meiosis
Mitosis and Meiosis are very different, yet very similar. This project is going to require you to make connections between the two processes and explain why they are important to each other while explaining their differences.

Additional Requirements:

- __ Followed rubric for each project
- __ At least one project is a group project
- __ One project on mitosis, one project on meiosis, one project comparing
- __ Spelling and Grammar

The Board

A. **Cell Division Dance *(Group)*** Create a group dance that shows the clear understanding of mitosis or meiosis stages.	**B.** **Personal Mitosis/Meiosis Flowchart or Diagram** Create your own type of flowchart connecting the ideas between mitosis and meiosis. This diagram should show the relationship between the 2 things.	**C.** **Autobiography** Imagine you are a cell about to undergo cell division (mitosis or meiosis). Create diary entries that you, as a cell would have written describing what you're experiencing during the cell division process.
D. **Comic Strip** Draw & Color a "Cell Division Comic Strip" displaying the life cycle of a cell. Minimum of 8 boxes and a title.	**E.** **Your Choice!** You must get teacher approval for this. My idea is: _____ Teacher Approval: _____ ***(If you chose route, C, E, G, this project (E) must be a group project)***	**F.** **Infomercial *(Group)*** Some people do not see the benefit of cell division. Create a commercial that highlights why we need cell division and the benefits we have already gained from it. Also, how will it benefit us in the future?
G. **Infographic** Create an informative graphic about important topics we have covered in the unit.	**H.** **Game *(Group)*** Create a game board that can be played to study the major topics of our Cell Division unit.	**I.** **Children's Book** Create a colorful children's book displaying all that you have learned about the cycle of cell division. Minimum 10 pages.

Assignments Chosen: _____, _____, & _____.
(If you choose route, C, E, and G, project E must be a group project)

Mitosis/Meiosis Tic Tac Toe Rubrics
*** ALL PROJECTS WORH 20 POINTS EACH***

A. Cell Division Dance *(Group)*
___ All students actively help design and participate equally
___ Dance shows clear understanding of mitosis or meiosis stages
___ Dance includes: steps in unison, clapping, arm movement, footsteps or leg movements
___ No talking except for stage changes, professional attitude, takes pride in dance

B. Personal Mitosis/Meiosis Flowchart or Diagram
___ Flowchart is readable or diagram is physically built.
___ A definite relationship between the two variables is shown.
___ There is a connection to genetics
___ Written explanation of features (in paragraph form) is included. This should explain the relationships. It is typed or neatly written.

C. Autobiography
___ Student has chosen mitosis or meiosis. If mitosis is chosen, the cell type is identified (nerve cell, skin cell, etc.) and the amount
___ Facts given are accurate
___ Autobiography is written in students' OWN words. Plagiarism will result in a score of zero.
___ At least 7 entries are included. (These can span over several years or days since all cells spend a different amount of time in the cycle.)

D. Comic Strip
___ Comic strip accurately depicts the life cycle of a cell (mitosis or meiosis)
___ Characters are involved in an obvious story line
___ A minimum of 8 boxes have been created
___ Comic strip is colorful and neat

E. Your Choice from Tic-Tac-Toe Board
___ Not a project that you have already selected
___ Follows rubric for project chose

F. Infomercial *(Group)*
___ At least 30 seconds in length
___ Content expressed is accurate about why mitosis or meiosis is important.
___ Each stage is included and explained in detail
___ Infomercial is filmed or acted out to class.

G. Infographic
___ Each stage of mitosis or meiosis are explained
___ Importance of this particular cell division included
___ More pictures than text
___ What happens if mitosis or meiosis goes wrong

H. Game *(Group)*
___ Game board helps players practice cell division unit topics.
___ At least 25 questions with answers included in game
___ Game rules are included
___ Game board is neat and colorful

I. Children's Book
___ All stages of a cell's life cycle are included and accurately explains each stage. Content must be very specific.
___ 10 pages minimum, not including title page.
___ Colorful and neatly done
___ Story is appropriate level for small children and written in students own words. Plagiarism will result in a score of a zero.

Additional Requirements
___ Followed rubric for each project
___ At least one project is a group project
___ One project on mitosis, one project on meiosis, one project comparing
___ Spelling and Grammar

Peer Reviews: You must have someone peer review your projects for you. This page will be turned in and factored into your grade

Route	Rubrics				Grade
A-B-C	**Cell Division Dance *(Group)*** __ All students actively help design and participate equally __ Dance shows clear understanding of mitosis or meiosis stages __ Dance includes: steps in unison, clapping, arm movement, footsteps or leg movements __ No talking except for stage changes, professional attitude, takes pride in dance Group Members:	**Personal Mitosis/Meiosis Flowchart or Diagram** __ Flowchart is readable or diagram is physically built. __ A definite relationship between the two variables is shown. __ There is a connection to genetics __ Written explanation of features (in paragraph form) is included. This should explain the relationships. It is typed or neatly written.	**Autobiography** __ Student has chosen mitosis or meiosis. If mitosis is chosen, the cell type is identified (nerve cell, skin cell, etc.) and the amount __ Facts given are accurate __ Autobiography is written in students' OWN words. Plagiarism will result in a score of zero. __ At least 7 entries are included. (These can span over several years or days since all cells spend a different amount of time in the cycle.)	**Additional Requirements** __ Followed rubric for each project __ At least one project is a group project __ One project on mitosis, one project on meiosis, one project comparing __ Spelling and Grammar	
Notes					
D-E-F	**Comic Strip** __ Comic strip accurately depicts the life cycle of a cell (mitosis or meiosis) __ Characters are involved in an obvious story line __ A minimum of 8 boxes have been created __ Comic strip is colorful and neat	**Your Choice from Tic-Tac-Toe Board** __ Not a project that you have already selected __ Follows rubric for project chose	**Infomercial *(Group)*** __ At least 30 seconds in length __ Content expressed is accurate about why mitosis or meiosis is important. __ Each stage is included and explained in detail __ Infomercial is filmed or acted out to class. Group Members:	**Additional Requirements** __ Followed rubric for each project __ At least one project is a group project __ One project on mitosis, one project on meiosis, one project comparing __ Spelling and Grammar	
Notes					
G-H-I	**Infographic** __ Each stage of mitosis or meiosis are explained __ Importance of this particular cell division included __ More pictures than text __ What happens if mitosis or meiosis goes wrong	**Game *(Group)*** __ Game board helps players practice cell division unit topics. __ At least 25 questions with answers included in game __ Game rules are included __ Game board is neat and colorful Group Members:	**Children's Book** __ All stages of a cell's life cycle are included and accurately explains each stage. Content must be very specific. __ 10 pages minimum, not including title page. __ Colorful and neatly done __ Story is appropriate level for small children and written in students own words. Plagiarism will result in a score of a zero.	**Additional Requirements** __ Followed rubric for each project __ At least one project is a group project __ One project on mitosis, one project on meiosis, one project comparing __ Spelling and Grammar	
Notes					
A-D-G	**Cell Division Dance *(Group)*** __ All students actively help design and participate equally __ Dance shows clear understanding of mitosis or meiosis stages __ Dance includes: steps in unison, clapping, arm movement, footsteps or leg movements __ No talking except for stage changes, professional attitude, takes pride in dance Group Members:	**Comic Strip** __ Comic strip accurately depicts the life cycle of a cell (mitosis or meiosis) __ Characters are involved in an obvious story line __ A minimum of 8 boxes have been created __ Comic strip is colorful and neat	**Infographic** __ Each stage of mitosis or meiosis are explained __ Importance of this particular cell division included __ More pictures than text __ What happens if mitosis or meiosis goes wrong	**Additional Requirements** __ Followed rubric for each project __ At least one project is a group project __ One project on mitosis, one project on meiosis, one project comparing __ Spelling and Grammar	
Notes					

Route	Rubrics				Grade
B-E-H	**Personal Mitosis/Meiosis Flowchart or Diagram** __ Flowchart is readable or diagram is physically built. __ A definite relationship between the two variables is shown. __ There is a connection to genetics __ Written explanation of features (in paragraph form) is included. This should explain the relationships. It is typed or neatly written.	**Your Choice from Tic-Tac-Toe Board** __ Not a project that you have already selected __ Follows rubric for project chose	**Game *(Group)*** __ Game board helps players practice cell division unit topics. __ At least 25 questions with answers included in game __ Game rules are included __ Game board is neat and colorful Group Members:	**Additional Requirements** __ Followed rubric for each project __ At least one project is a group project __ One project on mitosis, one project on meiosis, one project comparing __ Spelling and Grammar	
Notes					
C-F-I	**Autobiography** __ Student has chosen mitosis or meiosis. If mitosis is chosen, the cell type is identified (nerve cell, skin cell, etc.) and the amount __ Facts given are accurate __ Autobiography is written in students' OWN words. Plagiarism will result in a score of zero. __ At least 7 entries are included. (These can span over several years or days since all cells spend a different amount of time in the cycle.)	**Infomercial *(Group)*** __ At least 30 seconds in length __ Content expressed is accurate about why mitosis or meiosis is important. __ Each stage is included and explained in detail Infomercial is filmed or acted out to class. Group Members:	**Children's Book** __ All stages of a cell's life cycle are included and accurately explains each stage. Content must be very specific. __ 10 pages minimum, not including title page. __ Colorful and neatly done __ Story is appropriate level for small children and written in students own words. Plagiarism will result in a score of a zero.	**Additional Requirements** __ Followed rubric for each project __ At least one project is a group project __ One project on mitosis, one project on meiosis, one project comparing __ Spelling and Grammar	
Notes					
A-E-I	**Cell Division Dance *(Group)*** __ All students actively help design and participate equally __ Dance shows clear understanding of mitosis or meiosis stages __ Dance includes: steps in unison, clapping, arm movement, footsteps or leg movements __ No talking except for stage changes, professional attitude, takes pride in dance Group Members:	**Your Choice from Tic-Tac-Toe Board** __ Not a project that you have already selected __ Follows rubric for project chose	**Children's Book** __ All stages of a cell's life cycle are included and accurately explains each stage. Content must be very specific. __ 10 pages minimum, not including title page. __ Colorful and neatly done __ Story is appropriate level for small children and written in students own words. Plagiarism will result in a score of a zero.	**Additional Requirements** __ Followed rubric for each project __ At least one project is a group project __ One project on mitosis, one project on meiosis, one project comparing __ Spelling and Grammar	
Notes					
C-E-G	**Autobiography** __ Student has chosen mitosis or meiosis. If mitosis is chosen, the cell type is identified (nerve cell, skin cell, etc.) and the amount __ Facts given are accurate __ Autobiography is written in students' OWN words. Plagiarism will result in a score of zero. __ At least 7 entries are included. (These can span over several years or days since all cells spend a different amount of time in the cycle.)	**Your Choice from Tic-Tac-Toe Board *(Group)*** __ Not a project that you have already selected __ Follows rubric for project chose Group Members:	**Infographic** __ Each stage of mitosis or meiosis are explained __ Importance of this particular cell division included __ More pictures than text __ What happens if mitosis or meiosis goes wrong	**Additional Requirements** __ Followed rubric for each project __ At least one project is a group project __ One project on mitosis, one project on meiosis, one project comparing __ Spelling and Grammar	
Notes					