Name: Sachin Sharma Class :8 Red Due Date:

Logo

Description automatically generated**Thomas Carr College**

**YEAR 8 SCIENCE**

THE INCREDIBLE CELL MODEL

All living things are made up of cells. Some small organisms may consist of only one cell whereas large organisms such as you, consist of millions of cells. These cells are arranged in tissues, organs and systems so that your body can work properly and you can live.

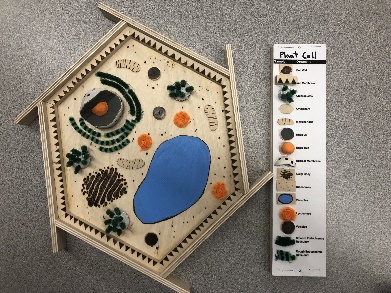
## Task Requirements:

In this task, you will be required to construct a 2D or 3D model of either a **plant** OR **animal cell**. The following is a list of what to include in and how to construct your model:

* Your name and form
* A label that identifies the type of cell (plant or animal).
* Inclusion of the appropriate organelles (see table below of what to include) that are appropriate for your type of cell.
  + All parts of your cell must be labelled clearly; you may wish to use “flags” as labels or a key system with an attached document
  + Functions of each organelle should be provided.

**Suggestion 1**: Use the backside of your label “flags” to write down the job of that organelle. OR **Suggestion 2:** On a separate sheet of paper

* + ***Your organelles should clearly represent the actual organelle. By just looking at an organelle I should be able to tell what it is. Ex: Your nucleus should not be square. Your mitochondria should have a folded inner membrane.***
  + Actual numbers of organelles found in real cells should be represented. Ex: Each cell has one nucleus. Plant cells have one large vacuole. Cells have multiple mitochondria and other organelles.
  + The relative size of the organelles are accurately depicted in the model



## Other factors to consider:

## Use whatever materials you like (Styrofoam, wood, clay, etc.).

## The cell must be at least 20 centimetres wide, long, and high.

## A bibliography needs to be included with your model.

## Organelles

The following MUST be included in your model

|  |  |
| --- | --- |
| **Animal Cell** | **Plant Cell** |
| Cell membrane | Cell membrane |
| Cytoplasm | Cell Wall |
| Mitochondria | Chloroplast |
| Nucleus | Cytoplasm |
| Nuclear membrane | Mitochondria |
| Vacuole | Nucleus |
|  | Nuclear membrane |
|  | Vacuole |

The following are OPTIONAL in your model

|  |  |
| --- | --- |
| Golgi Apparatus (Golgi bodies) | Golgi Apparatus (Golgi bodies) |
| Endoplasmic reticulum | Endoplasmic reticulum |
| Ribosomes | Ribosomes |
| Lysosome |  |
| Nucleolus |  |

**ASSESSMENT CRITERIA:**

NAME:………………………………………………………………………………. CLASS:………………..… SUBMITTED ON TIME: **YES / NO**

# THE INCREDIBLE CELL MODEL

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **CRITERIA** | **NIL** | **LOW** | **SATISFACTORY** | **HIGH** | **OUTSTANDING** | **SCORES** | |
| **Ability to…** | **(0)** | **(1)** | **(2)** | **(3)** | **(4)** | **Peer/ Self** | **Teacher** |
| **SCIENCE**  Science knowledge and understanding | Use the model to demonstrate the different parts of a cell | A model was not presented | The model did not adequately show any structures within the cell | The model showed the cell wall, membrane and nucleus within the cell but they were not labelled or fully  demonstrated | The model showed most of the organelles within the cell and they were clearly labelled and demonstrated | The model showed all of the organelles within the cell, and they were all clearly labelled and demonstrated. |  |  |
| Outlined the functions of the organelles | Functions of the organelles were not presented | A few of the organelles were identified and functions outlined | Some (~ half) of the organelles were identified and/or functions briefly  outlined | Most of the organelles were accurately identified and functions outlined  with some detail | All of the organelles were accurately identified, and functions were outlined with appropriate detail |  |  |
| **SCIENCE**  Inquiry skills | Use materials in an innovative and appropriate way to represent parts of a  cell | No materials were used | Most of the materials chosen were not suitable to represent parts of the cell | Most of the materials chosen were suitable to represent parts of the cell | Appropriate materials were chosen and used to suitable to represent parts of the cell | Appropriate materials were chosen and used in an appropriate and innovative way |  |  |
| Make a model that is robust and accurate in representation (also  accurately labelled) | The model was not presented | The model was attempted but was not robust or accurately represented/labelled | The model was robust but not accurately represented (or labelled) | The model was accurately represented (and labelled) but not robust and/or persuasive  enough | The model was robust, persuasive and accurately represented; all labels were accurately too |  |  |
| **THINKING** | Demonstrate | A model was not | A model was presented | A model was presented | An accurate model was | An accurate and colourful |  |  |
| **PROCESSES** | creativity with the | presented | but was lacking colour | but was lacking detail and | presented covering most | model was presented |
| CREATIVITY | model |  | and detail (creativity) | creativity | of the information  presented | covering all the  information required |
| **Numeracy** | Present the size , | A model was not | The model was | The model was | The model was presented | Relative size, shape and |  |  |
|  | number and shape | presented | attempted but organelles | attempted and most | and organelles were | number of the organelles |
|  | of organelles |  | were not accurately | organelles were | represented | are accurately displayed |
|  | accurately |  | represented in terms of | represented | appropriately in terms of | in the model |
|  |  |  | size, number and shape | appropriately in terms of | size, number and shape |  |
|  |  |  |  | either size, number or |  |  |
|  |  |  |  | shape |  |  |

**THE INCREDIBLE CELL PROJECT**

**YOUR NAME**: **NAME OF STUDENT YOU ARE PEER ASSESSING**:

***Place a tick next to the criteria***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Criteria** | **NIL (0)** | **LOW (1)** | **SAT (2)** | **HIGH (3)** | **V HIGH (4)** |
| Is your name on the project? |  |  |  |  |  |
| Is the cell type identified? Tell if it is a plant or animal cell. |  |  |  |  |  |
| Is the model a 3-D representation of a plant or animal cell? |  |  |  |  |  |
| Are all the organelles included? |  |  |  |  |  |
| Are the organelles correctly labelled? Each organelle must be labelled with its name and function, or using a key. |  |  |  |  |  |
| Is there an accurate number of organelles in the cell model? |  |  |  |  |  |
| Are the materials acceptable? |  |  |  |  |  |
| Is the model approximately 20 centimetres on any side? |  |  |  |  |  |
| Bibliography of all your references is included? |  |  |  |  |  |

# THE INCREDIBLE CELL PROJECT

**YOUR NAME**: **NAME OF STUDENT YOU ARE PEER ASSESSING**:

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|  |  |  |  |  |  |
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| Is there an accurate number of organelles in the cell model? |  |  |  |  |  |
| Are the materials acceptable? |  |  |  |  |  |
| Is the model approximately 20 centimetres on any side? |  |  |  |  |  |
| Bibliography of all your references is included? |  |  |  |  |  |