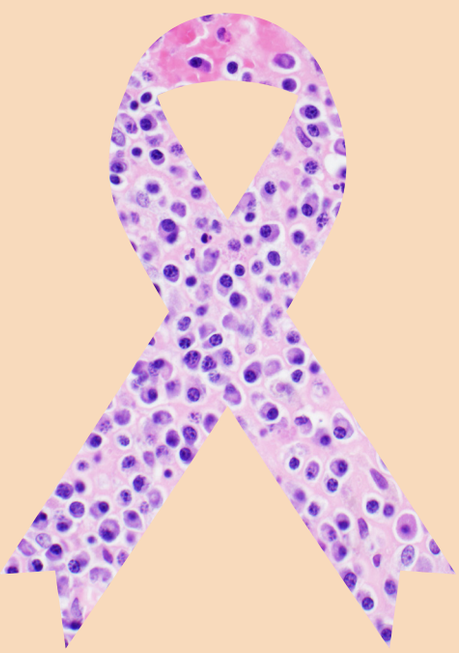
Hot Science

Cancer Busters



Hot
Science
Cool Activities

www.HotScience.tv

Celldunnit Introduction

Cancer kills approximately 10 million people each year, making it one of the largest public health issues of our time. As researchers are working on a cure for various forms of cancer, we are also making groundbreaking innovations in technology to treat cancer as well. This technology can be a game changer in modern cancer treatment.

In an activity that is similar to parody of the game Clue, your job is to deduce what cell in what organ is cancerous, and what checkpoint has failed.

Materials

- A printout of the Celldunnit board
- 3 player pieces. These can be made with paper
- 4 checkpoint cards
  - DNA damaged
  - DNA replicated incorrectly
  - Chromosomes unaligned
  - Cell incorrect size
- 6-sided dice
- 8 cell cards
  - Cells A through H
- 8 cell cards
  - 1 envelope
- 5 organ cards
  - Lung
  - Breast
  - Skin
  - Uterus
  - Colon

Note* to print the board and cards one sided.

Group Activity

Your Thoughts on Cancer

1. What comes to mind when you hear that someone has cancer?

2. Why do you think cancer is so hard to treat?

Overview

In groups of 3, you will be playing a version of the popular board game "Clue." One person in the group will randomly select one organ card, one checkpoint card, and one cancer cell card to put into the confidential envelope. That person will then start the game, and each person will submit their accusations in clockwise order.

Set Up

1. Get into groups, and assign one person in the group to randomly select the organ, cell, and checkpoint cards and put them into the confidential envelope without looking at the cards.

2. Create 3 player pieces. Each player piece can be a small 3 in. piece of paper with a student's name written on it. Each person will have one player piece.

3. Print out the game board and place it in the middle of the group.

Group Activity

1. The person who put the cards into the envelope will go first.

2. They will roll a six-sided die. This will determine how many spaces they can go to make it to the organ. They will move their piece to the organ that they believe the cancer is in.

3. Inside the body part, they will guess the cell and the failed checkpoint that created cancer in the patient.

4. From the remaining cards, pass out the cards so each person has 3 cards. Unlike regular Clue, you are working together, so if the first person in the clockwiserotation has a card that "disproves" the accusation, they show it to everyone. If they do not, then the third person will show a card that "disproves the accusation," if they have one. Make sure you mark down your cards and guesses on the note sheet.

5. Repeat this process until the final person makes their guess.

6. You can do this process for 2 more rounds to narrow down the cancerous cells and failed checkpoint.

7. Once everyone has made their guess, use the clues that you have gathered as each person has made their guess to make a "final accusation," which will be one organ, one cell, and one checkpoint.

8. Go to the confidential envelope and see if your group had the correct prediction.

Notesheet

Lungs			
Breast			
Skin			
Uterus			
Colon			

DNA damaged			
DNA replicated incorrectly			
Chromosomes unaligned			
Cell incorrect size			

Cell A			
Cell B			
Cell C			
Cell D			
Cell E			
Cell F			
Cell G			
Cell H			

Post Activity

1. What were the most challenging parts of making your accusation?

2. If you incorrectly guessed the organ or if you removed the wrong cluster of cells in surgery, what do you think the consequences for the patient would be?

3. How do you think doctors use the process of elimination in diagnosing a patient?

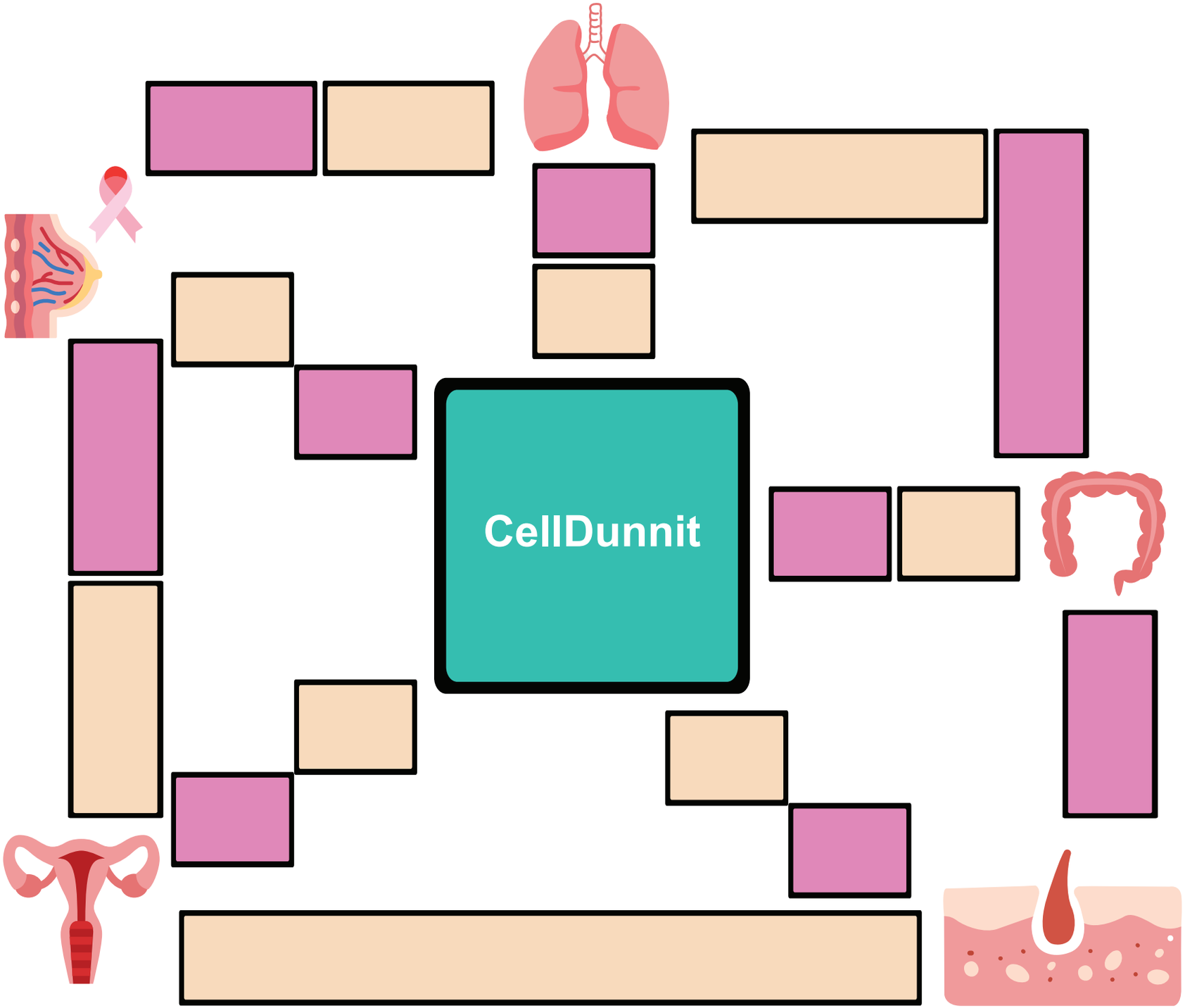
[Watch the HSCT talk for Detecting Cancer]

4. The MasSpec pen can be used to determine which cells are cancerous. If you had a MasSpec pen in your clue game that could tell you which of the cells were cancerous, how would this have changed the way your game turned out? Would the game have been easier?

5. How can the MasSpec pen improve the quality of life of a patient?

4

TEKS used for this activity
Biology 2017: 5C
Biology 2017: 3D
Technology Applications: 6H


CellDunnit

Cell A

Cell B

Cell C

Cell D

Cell E

Cell F

Cell G

Cell H








DNA Damaged

DNA Replicated Incorectly

Chromosomes Unaligned

Cell Incorrect Size




Colon

Breakfast

Lungs

Uterus

Skin