Dropping Signals Datasheet

Logistics

Time Required

- **Class Time:** 40 minutes
- **Prep Time:** 10 minutes

Materials

Student handouts, computers with internet access

Prior Knowledge Needed

None

Appropriate For:

Primary Intermediate Secondary College

Abstract

An optional fill-in-the-blank table to use in conjunction with the interactive online activity of the same title (url above). Students drag several types of signals to various cell types and record the cell's response. An answer key is provided.

Learning Objectives

- There are different types of cells, and different types of signals.
- Cells respond differently to signals depending on cell and signal type.

Credits

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Dropping Signals Datasheet
Answer Key

CELL TYPES

SIGNALS

		Muscle	Photoreceptor	Skin Cancer	Leaf Parenchyma	Fibroblast
		contain proteins that allow them to contract	specialized cell type in the retina of the eye	genetically changed skin cell with altered behavior	produce sugar in plant leaves	responsible for structural frameworks in body tissues
energy that travels freely through space	**Light**	No Response	Generates a signal that travels along a cell communication chain to the visual center of the brain	Gene that controls growth is damaged, causing the cell to grow and divide rapidly	Uses light energy to convert water and carbon dioxide into sugar	No response
a gas produced by cells	**Nitric Oxide**	The muscle cells relax	Undergoes light adaptation	Initiates programmed cell death (apoptosis)	Grows and divides	Differentiates, becoming a myofibroblast
a growth factor in the form of a small protein molecule	**Cytokine**	Divide to make two cells	No response	Grows and divides rapidly	No response	Divides and moves
a small protein molecule that travels through the blood stream	**Hormone**	Takes up nutrients from a nearby blood vessel	No response	Migrates and invades another tissue in the body	No response	Produces and releases proteins that hold cells together in a tissue

Name _____

Date _____

Complete the Dropping Signals activity on the Learn.Genetics website. Record the effect of each signal on each cell type in the table below.

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Dropping Signals

SIGNALS		CELL TYPES				
		contain proteins that allow them to contract	specialized cell type in the retina of the eye	genetically changed skin cell with altered behavior	produce sugar in plant leaves	responsible for structural frameworks in body tissues
		Muscle	**Photoreceptor**	**Skin Cancer**	**Leaf Parenchyma**	**Fibroblast**
energy that travels freely through space	**Light**					
a gas produced by cells	**Nitric Oxide**					
a growth factor in the form of a small protein molecule	**Cytokine**					
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