

Genetic4

Activity related to human karyotypes, syndromes, and Mendelian genetics

Age

Grades 6-12

Content Areas

- Karyotypes
- Abnormalities
- Mendelian genetics

Time

15-25 minutes

Objectives

- Students will explore the types of genetic disorders that arise from chromosomal abnormalities
- Students will be able to understand the cause, and characteristics of six genetic disorders.
- Students will physically apply what they learned in the paper karyotype activity.

Contact

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Set Up for the Genetic4 game

1. Insert slider bar into the bottom of the grid (by sliding).
2. Attach legs onto side of grid by sliding into place.
3. Choose who will have the red discs and who will have the yellow discs.

How to Play the Game

1. The objective of this game is get four of your red/yellow disks in a row that correspond to a genetic disorder :

Syndrome name (Blue)

Symptoms (Pink)

Cause (Green)

Chromosome (Orange)

2. Take turns dropping one of your disks into any slot in the top of the grid.
3. The first player to get a syndrome name, symptom, cause, and chromosome corresponding to the same disorder wins.



Ex. Where red player wins!

Genetic Disorder Key

Syndrome	Symptoms	Causes	Chromosome
Klinefelter	Low testosterone, delayed puberty, low muscle tone	Extra X chromosome	X Chromosome
Williams	Highly social personalities, difficulty with visual spatial tasks, ADD	Deletion	Chromosome 7
Triple X	Usually no extreme physical feature ailments	Extra X chromosome	X Chromosome
Edwards	Kidney malformations, heart defects, small head, growth deficiency	Trisomy	Chromosome 18
Cri-du-chat	Distinctive cry that resembles a cat	Deletion of a portion of the small arm (p)	Chromosome 5
Turner	Short stature, infertility, heart defects, and delayed puberty.	Deletion	X Chromosome

Research a genetic disorder yourself and fill out the empty row on the table

Additional Learning

National Human Genome Research Institute

URL: <http://www.genome.gov>

Gene Planet (Personal Genetics)

URL: <http://www.geneplanet.com>

Materials Used for Creating a Genetic4 Game

- Connect4 game boards (Hasbro)
- 48 colored discs (24 red and 24 yellow) *note the need for extra discs*
- Avery 3/4" round removable Multi-Use Labels #5408 (Use Avery Template 5472)

Food for Thought

One out of 180 children is born with a chromosomal abnormality

Grant Support

This material is based upon work supported by the National Science Foundation under Grant No. 1557605-DMS and 1553728-DBI. Any opinion, findings, and conclusions or recommendation expressed in this material are those of the authors and do not necessarily reflect the views of the NSF.

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