

Debates in Education

# Revolutionizing Schools with Design Thinking & Game-Like Learning



© Institute of Play 2016

C. Ross Flatt  
Lead Learning Designer  
Institute of Play  
@instituteofplay





# Welcome!



**C. Ross Flatt:**  
**Lead Learning Designer**  
**Institute of Play**



# Before we start...

1. Draw a triangle
2. Draw some circles
3. Draw filled-in circles inside
4. Above each, draw an upside - down V
5. Above, draw a bunch of straight lines
6. Draw a rectangle below the triangle



# WHAT DOES **PLAY** MEAN TO YOU?

*When was the last  
time you played?*





**LET'S PLAY!**

**ROCK**

**PAPER**

**SCISSORS**

**PEDRA**

**PAPER**

**TISORES**



# RULES

- 1. Play ONE ROUND of Rock, Paper, Scissors with a person next to you**
- 2. If you LOSE, please take a seat.**
- 3. If you WIN, find another person who won and play them.**
- 4. As you win, continue to move toward the front.**





# HOW DID **PLAY** **TRANSFORM** THIS SPACE?



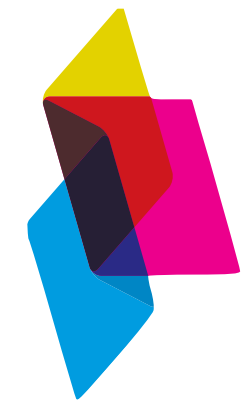


INSTITUTE  
of PLAY

@instituteofplay







**We design experiences that make learning irresistible.**



**At the core of the experiences we design are games, play, and the principles that underlie them.**



**We empower people to thrive as active citizens in a connected world.**



**Our purpose is  
to transform education  
through play.**





# WHY PLAY?

- Play builds social skills and encourages positive interactions with others
- Play activates the part of the brain responsible for reason, judgment, language, and memory.
- Skills associated with play lead to better academic performance.





PLAYS WELL WITH OTHERS

# Why What You Learned in Preschool Is Crucial at Work

OCT. 16, 2015



**Claire Cain  
Miller**

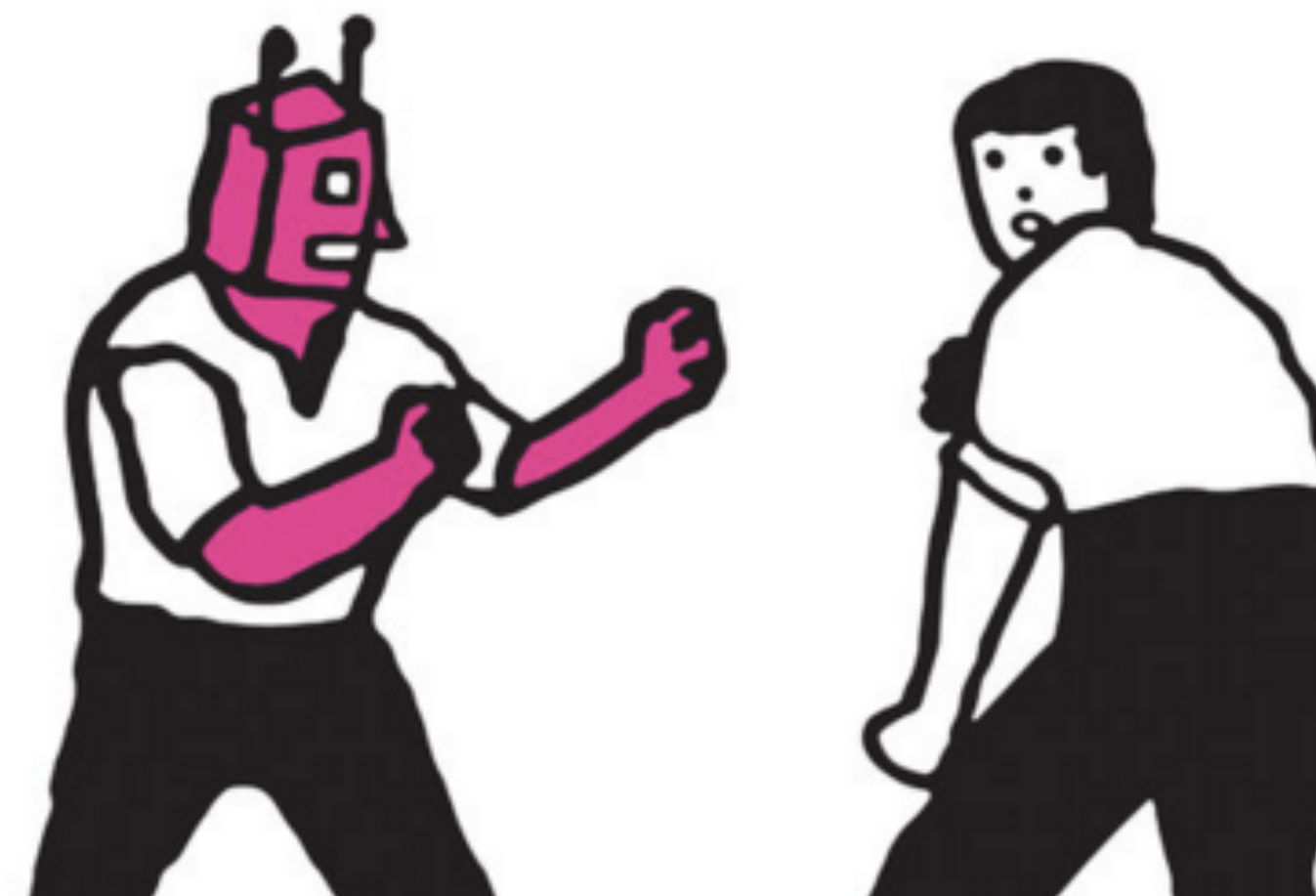
@clairecm

[✉](#) Email

[f](#) Share

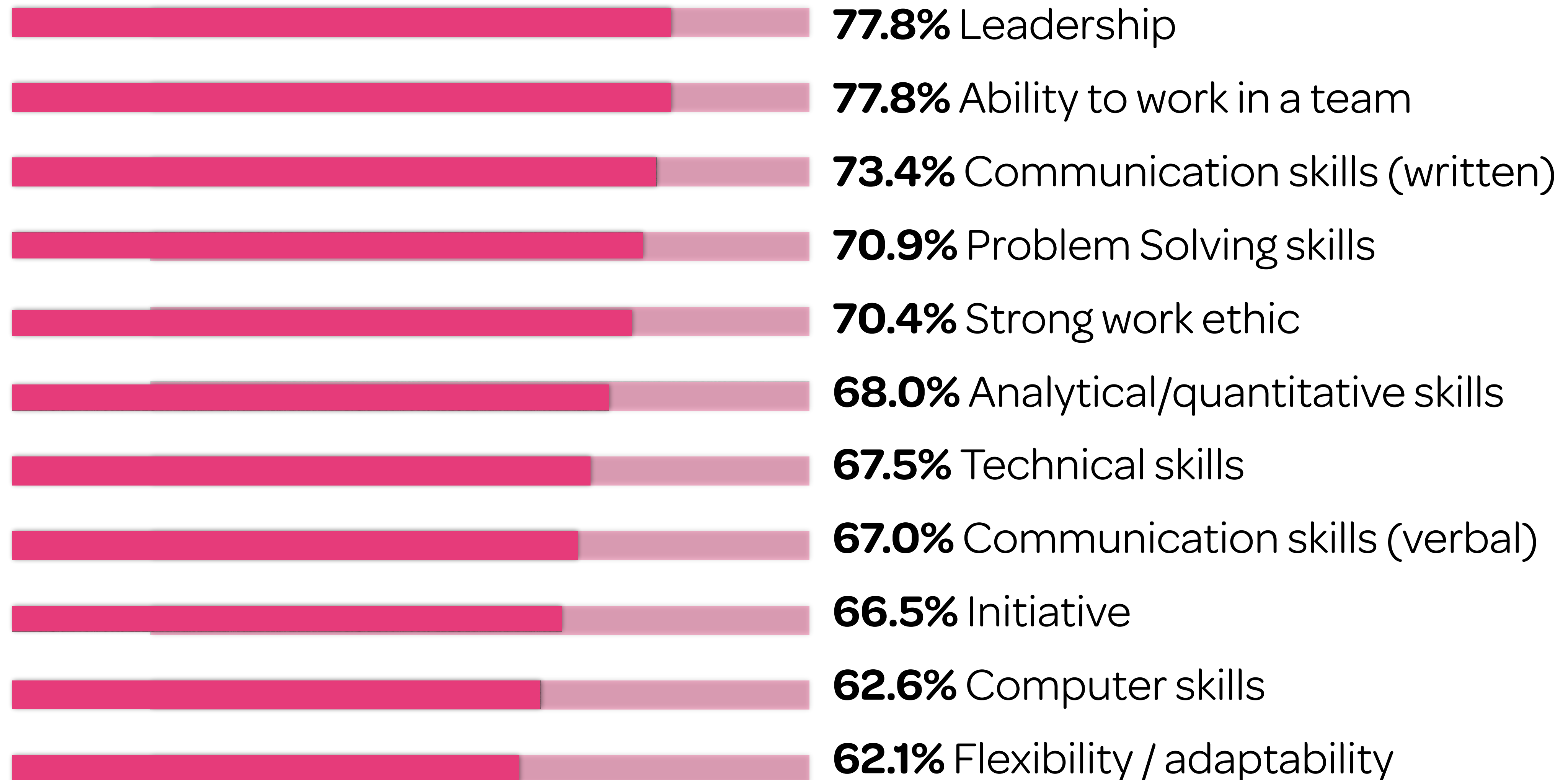
For all the jobs that machines can now do — whether performing surgery, driving cars or serving food — they still lack one distinctly human trait. They have no social skills.

Yet skills like cooperation, empathy and flexibility have become increasingly vital in modern-day work. Occupations that require strong social skills have grown much more than others since 1980, according to new research. And the only occupations that have shown consistent wage growth since 2000 require both cognitive and social skills.

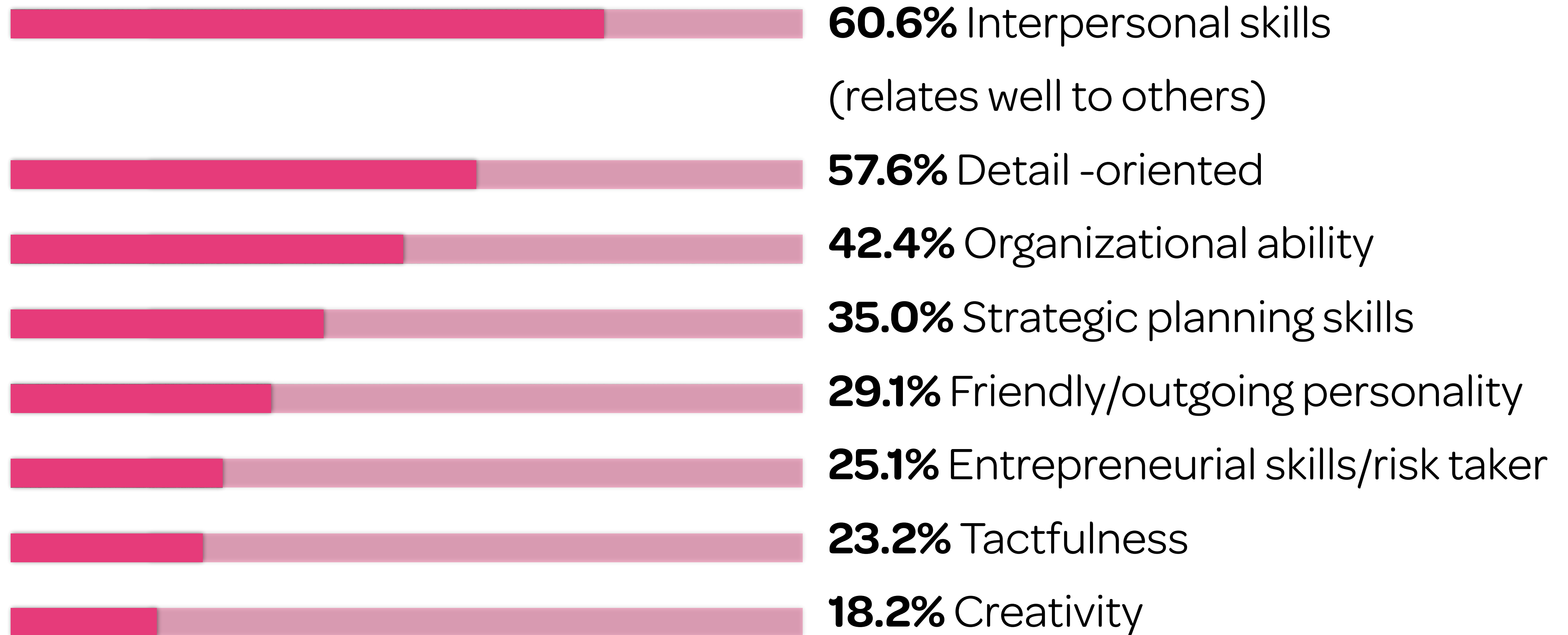




# Attributes Employers Seek on a Candidate's Resume



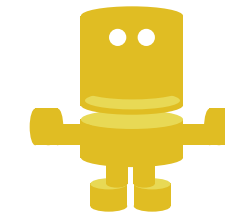
# Attributes Employers Seek on a Candidate's Resume



# Classrooms must support students in developing 21st Century Skills



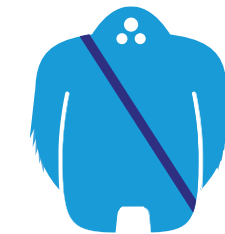
**Critical Thinking**



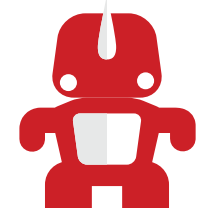
**Problem Solving**



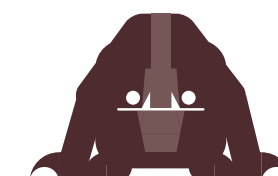
**Empathy**



**Collaboration**



**Creativity**



**Communication**





# GAME LIKE LEARNING PRINCIPLES

Everyone is a Participant

Learning Feels Like Play

Everything is Interconnected

Learning Happens By Doing

Failure is Reframed as Iteration

Feedback is Immediate and Ongoing

Challenge is Constant







*Challenging Students To Invent Their Future*



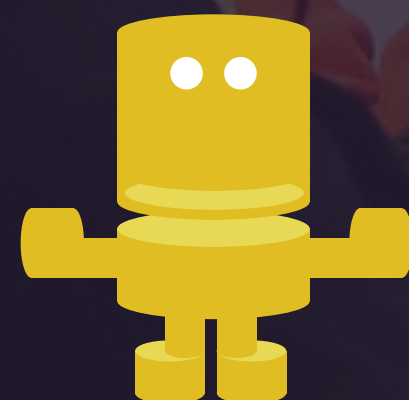




New York City public school  
Opened in 2009



Game-based learning  
Design thinking  
Systems thinking

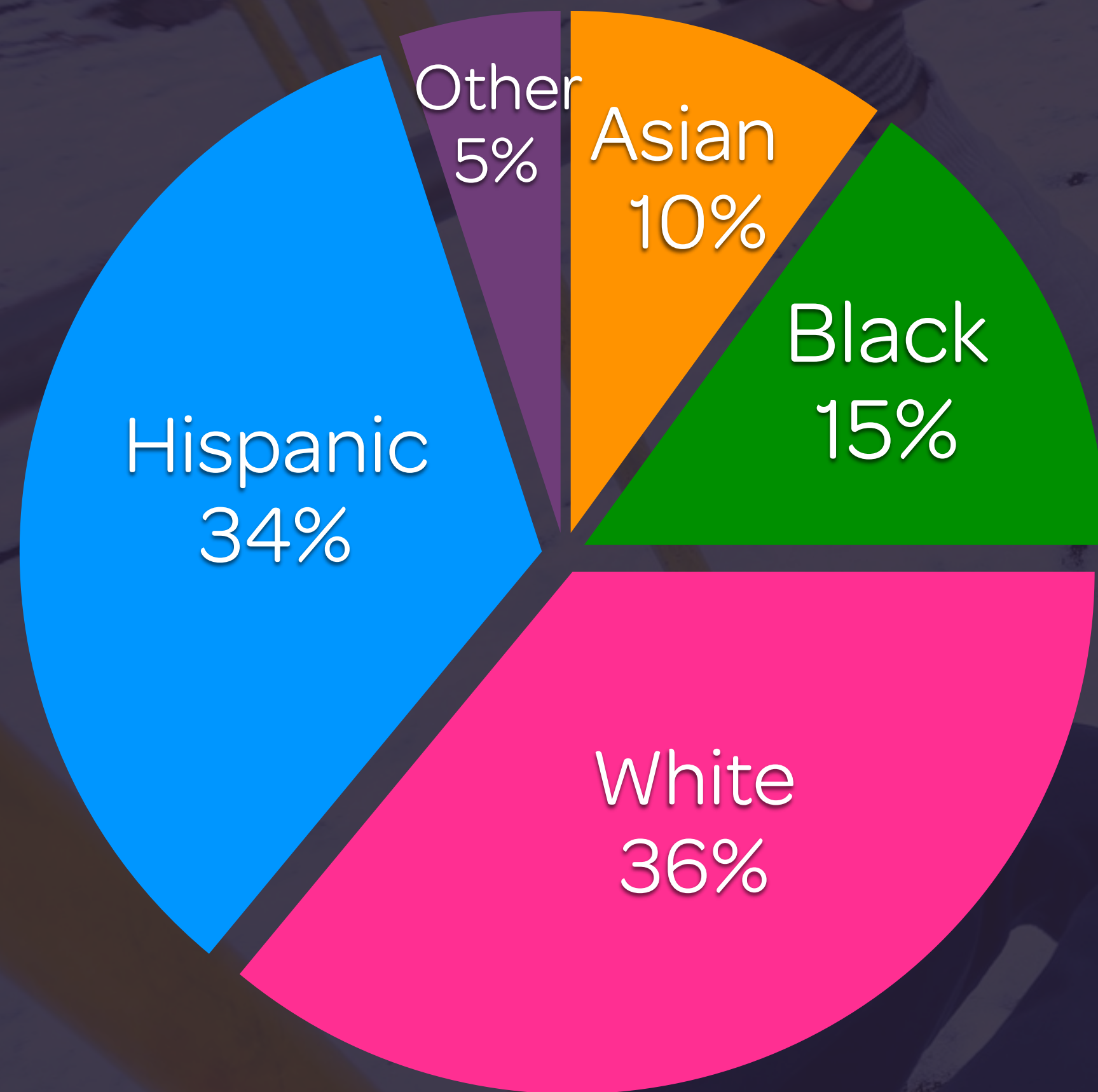


6-12th grade  
~680 students  
No entry tests





# Demographics\*



42% Free Lunch  
30% Special Ed  
3% English Lang Learners

## Standardized Tests

- Students perform above average in comparison to citywide results on Math and ELA (8th grade)

**\*Data from 2014-2015 School Report**





# WHAT MAKES QUESTUNIQUE?

- Meaningful Integration Of Technology
- Student-Driven, Connected Learning Environment
- Problem-Solving, Inquiry-Based
- Teachers And Students As Designers

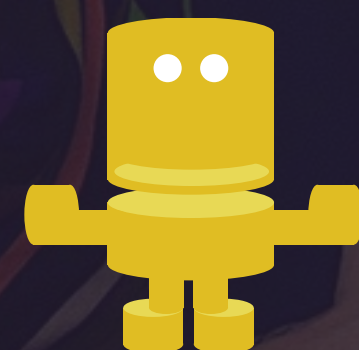








Preliminary results from the **Connecting Youth: Digital Learning Research Project** at NYU indicate that Quest to Learn students demonstrate **significant learning growth** in the following areas:



critical  
thinking



analytical  
skills



problem  
solving



written  
communication







## Re-Imagining Teaching Through Games And Play





A group of people, including men and women, are gathered around a table in what appears to be a meeting or classroom setting. They are looking at papers and a laptop on the table. In the background, there is a whiteboard with some writing on it. The text "Our goal is to re-envision the way teachers are taught and assessed, so that they can transform the world of students." is overlaid on the image in a bold, black font, with the words "re-envision", "taught and assessed", and "transform the world of students" highlighted in pink.

**Our goal is to re-envision the way  
teachers are taught and assessed,  
so that they can transform the  
world of students.**



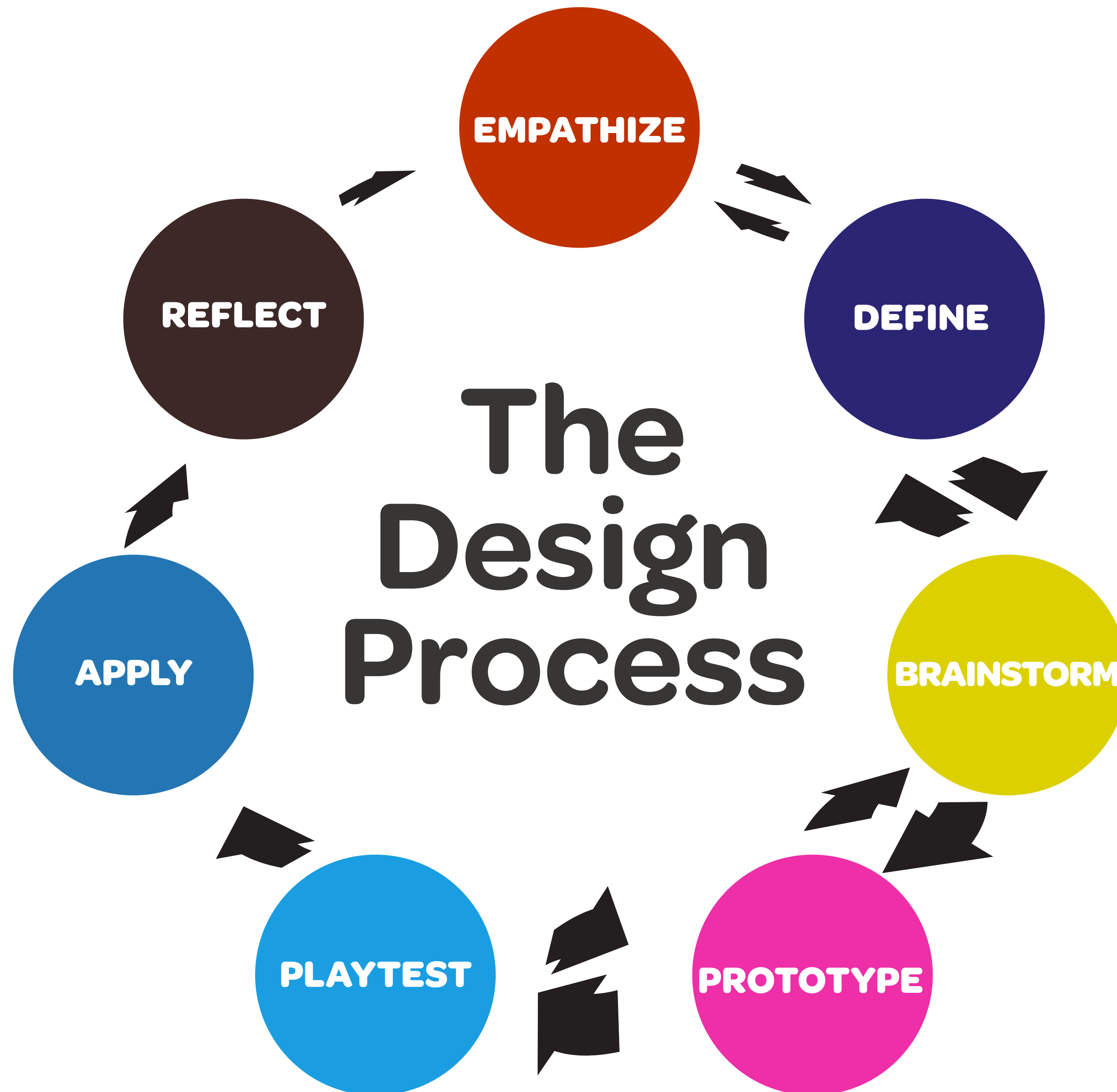














# GAMES & GAME-LIKE LEARNING: PEDAGOGICAL STRATEGIES



**Game  
Experience**



**Game-like  
Experience**



**Gamified  
Experience**







## Game Experience

A teacher creates or uses a game to support students in learning the concepts associated with probability.

1/4



Digital Games







## Game Experience

A teacher creates or uses a game to support students in learning the concepts associated with probability.

Analog Games





**LET'S PLAY!**

**Game EXPERIENCE**  
**in action.**





# Remember me?

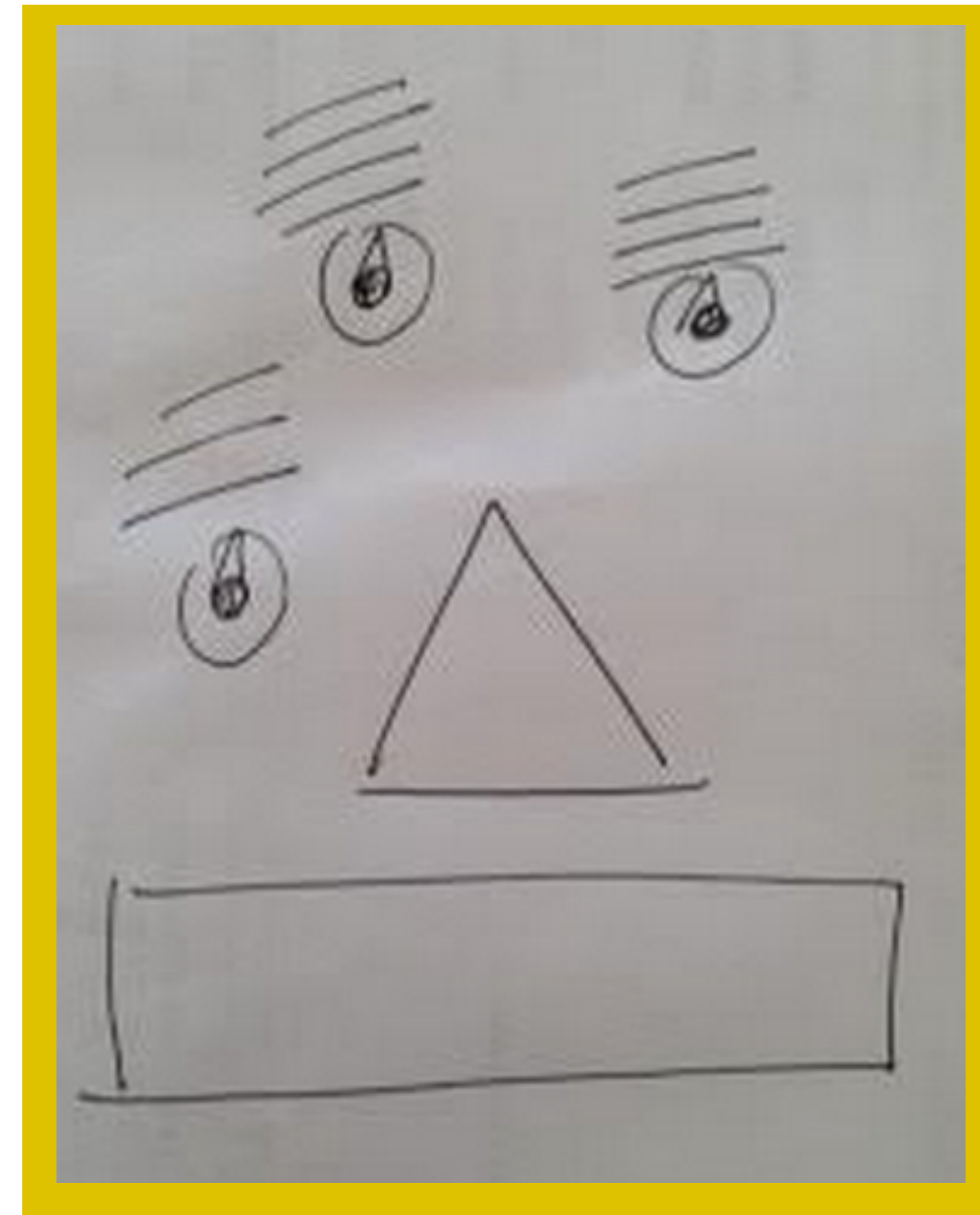
1. Draw a triangle
2. Draw some circles
3. Draw filled-in circles inside
4. Above each, draw an upside - down V
5. Above, draw a bunch of straight lines
6. Draw a rectangle below the triangle

## THINGS TO THINK ABOUT

► *What made these instructions ambiguous?*

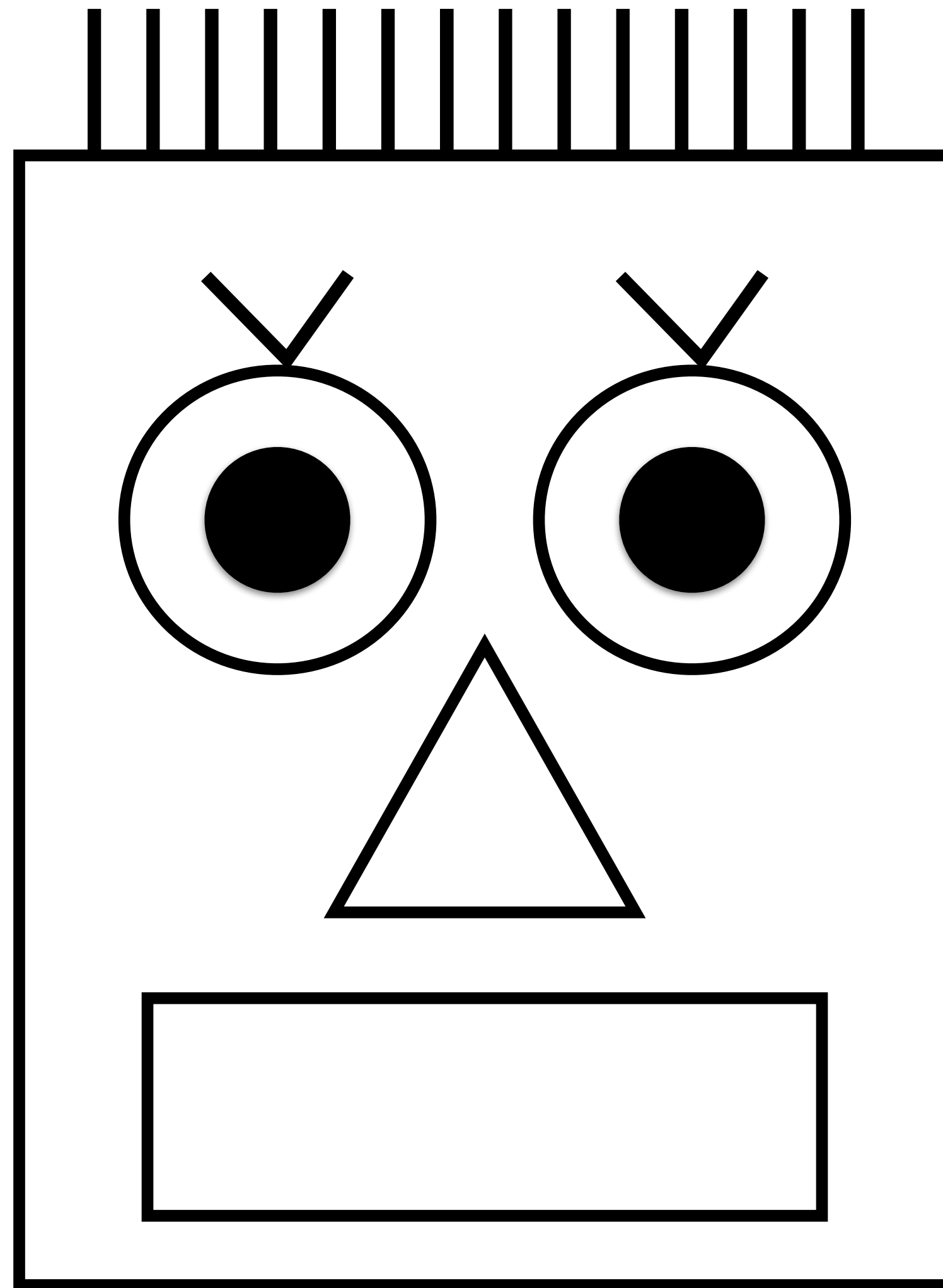
► *Why might you ask students to do something like this?*

*Is this what you drew?*





# PICTURE TALK



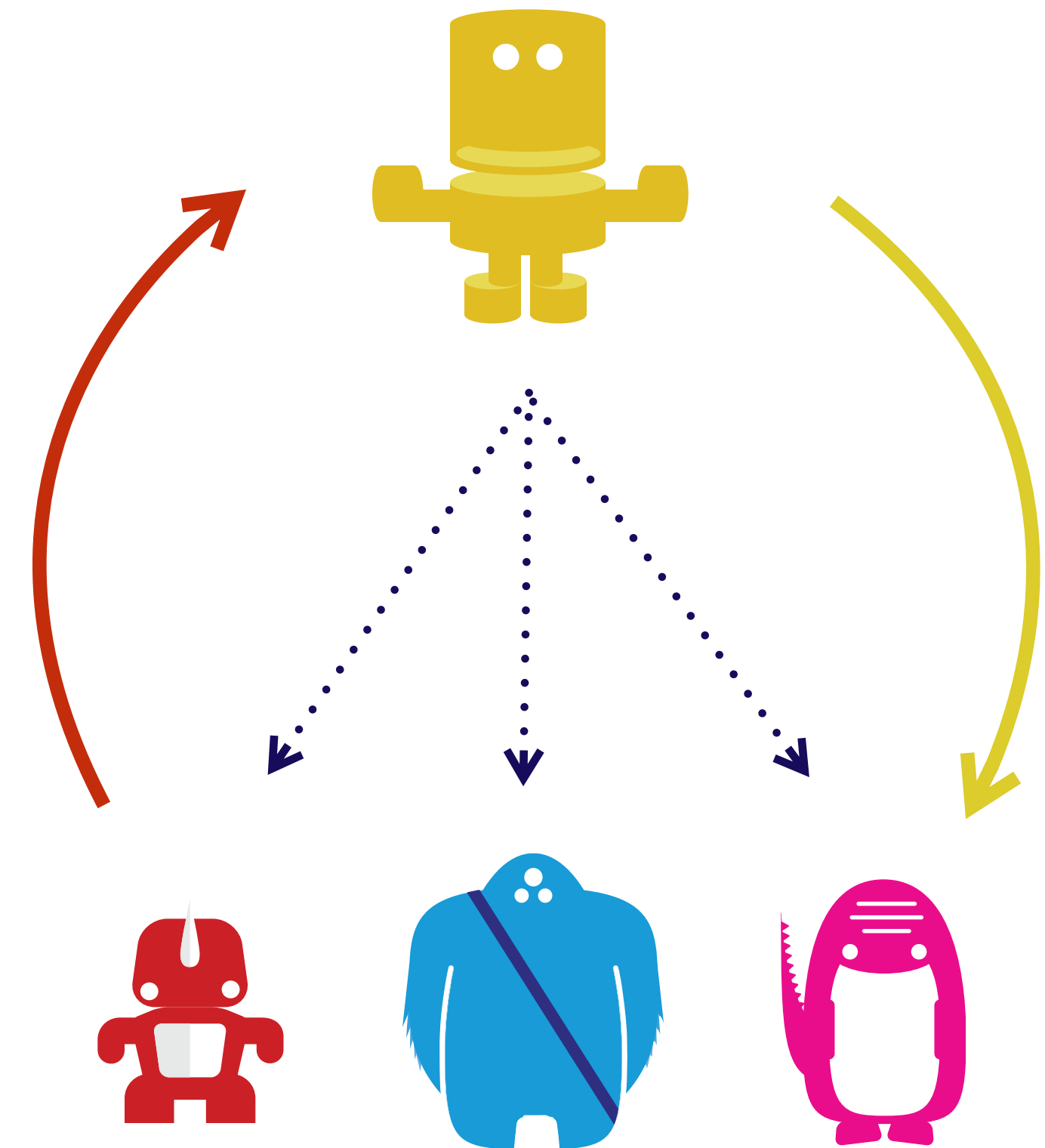


# PICTURE TALK

## Rules:

- The describer picks a card.
- S/he may use **any** words to instruct the copiers how to draw the picture.
- They CANNOT say what the card looks like.
- The copiers are not allowed to speak.
- When all copiers are finished, the describer reveals the original drawing and copiers reveal what they drew.

One describer



Copiers

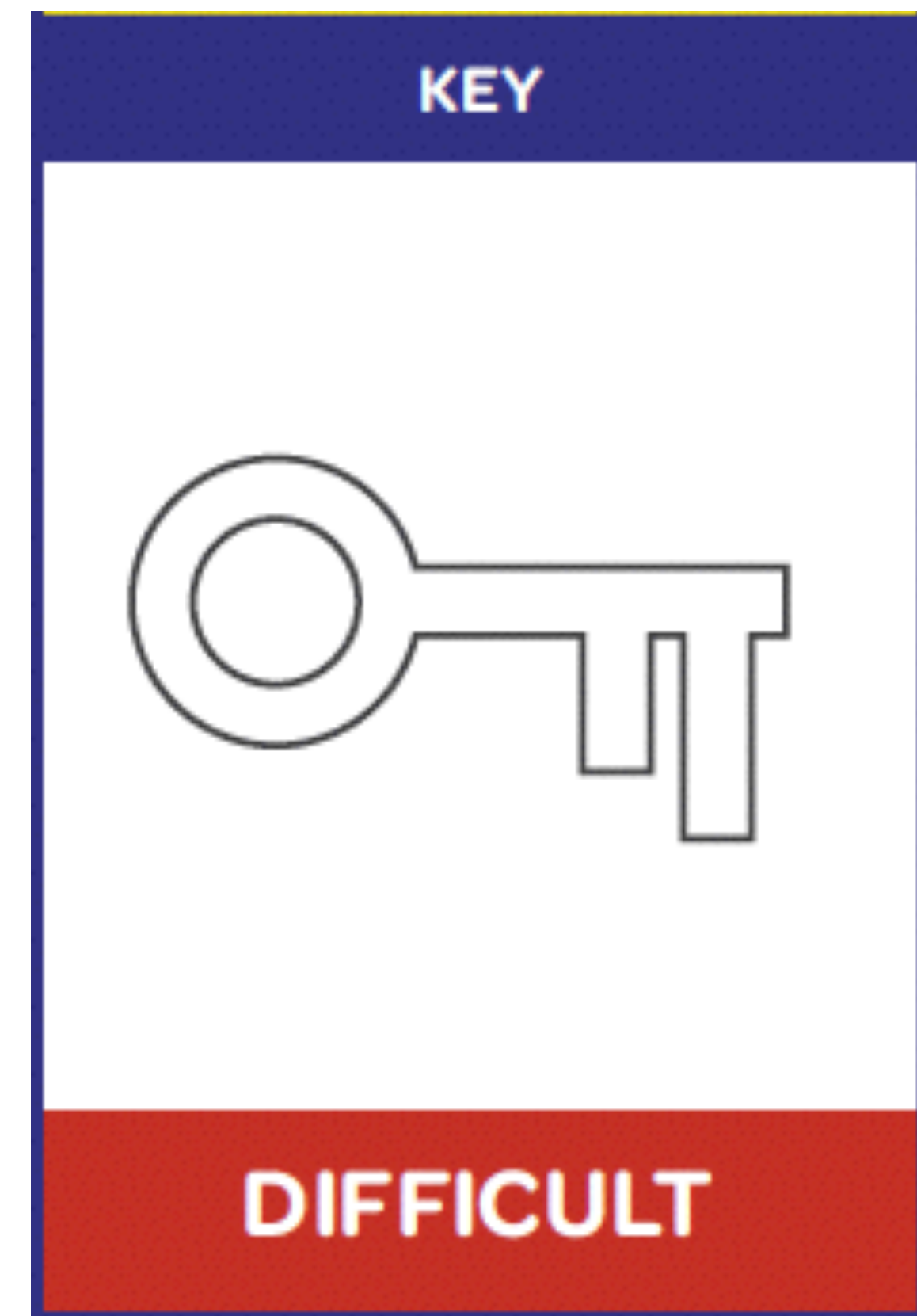
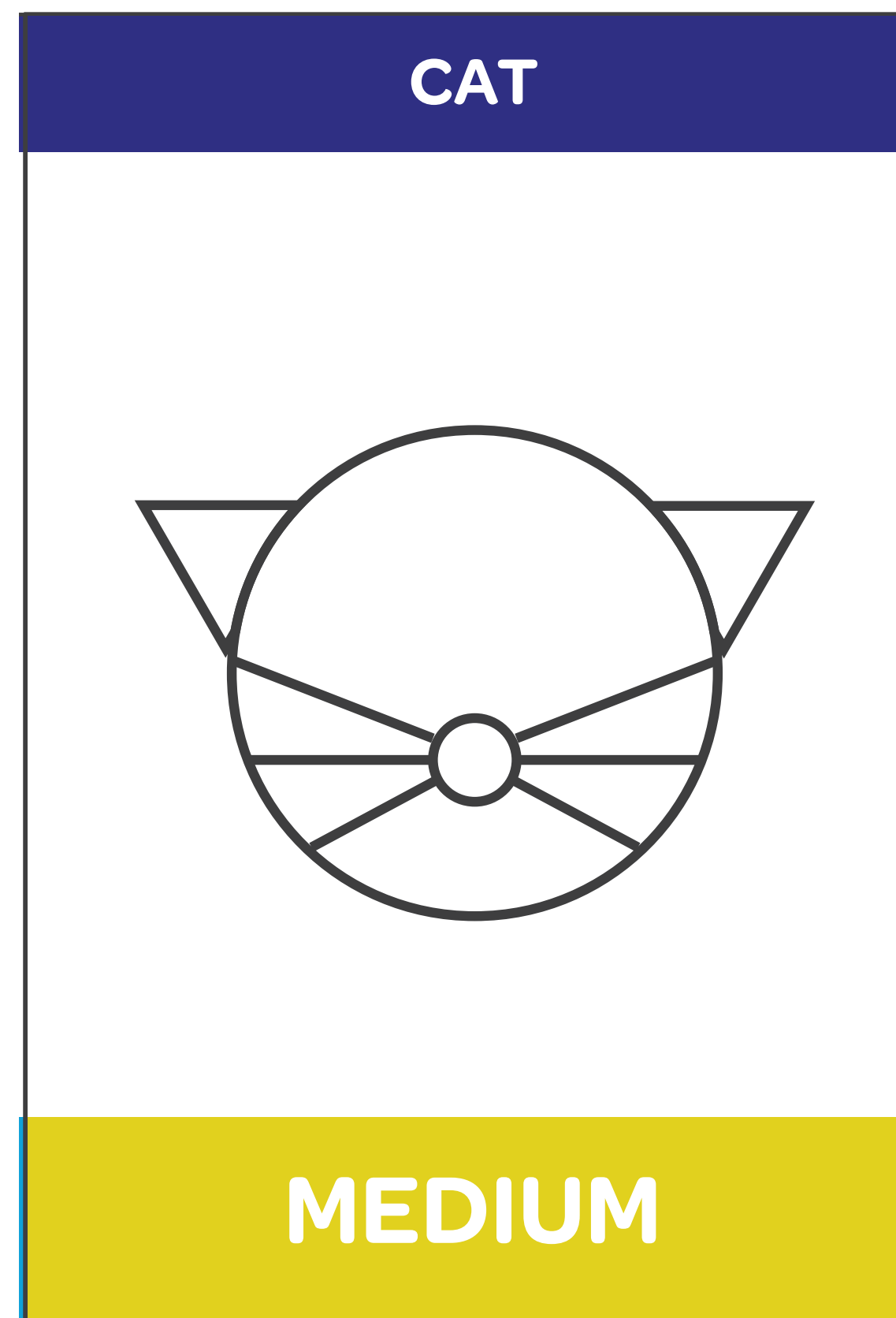
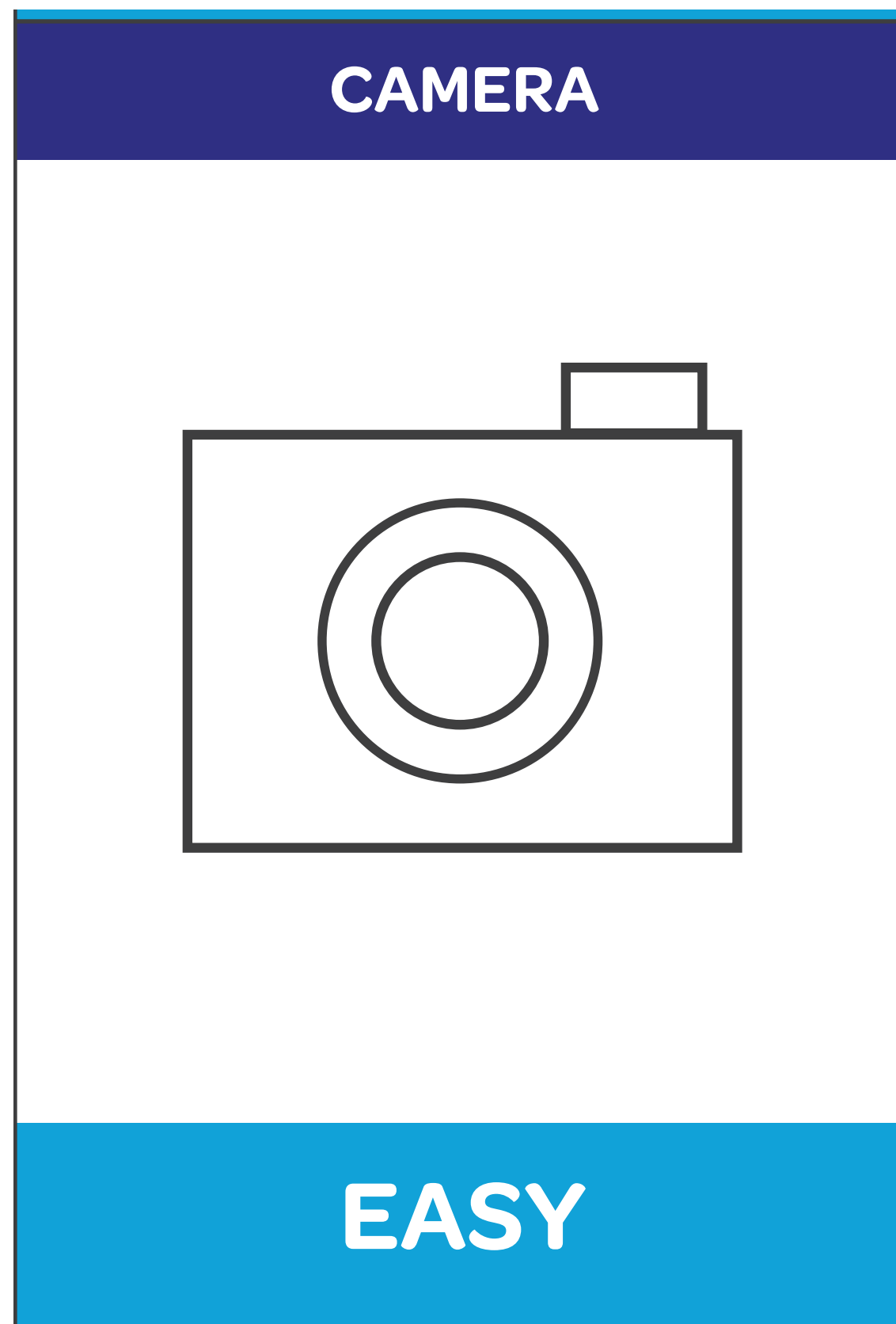






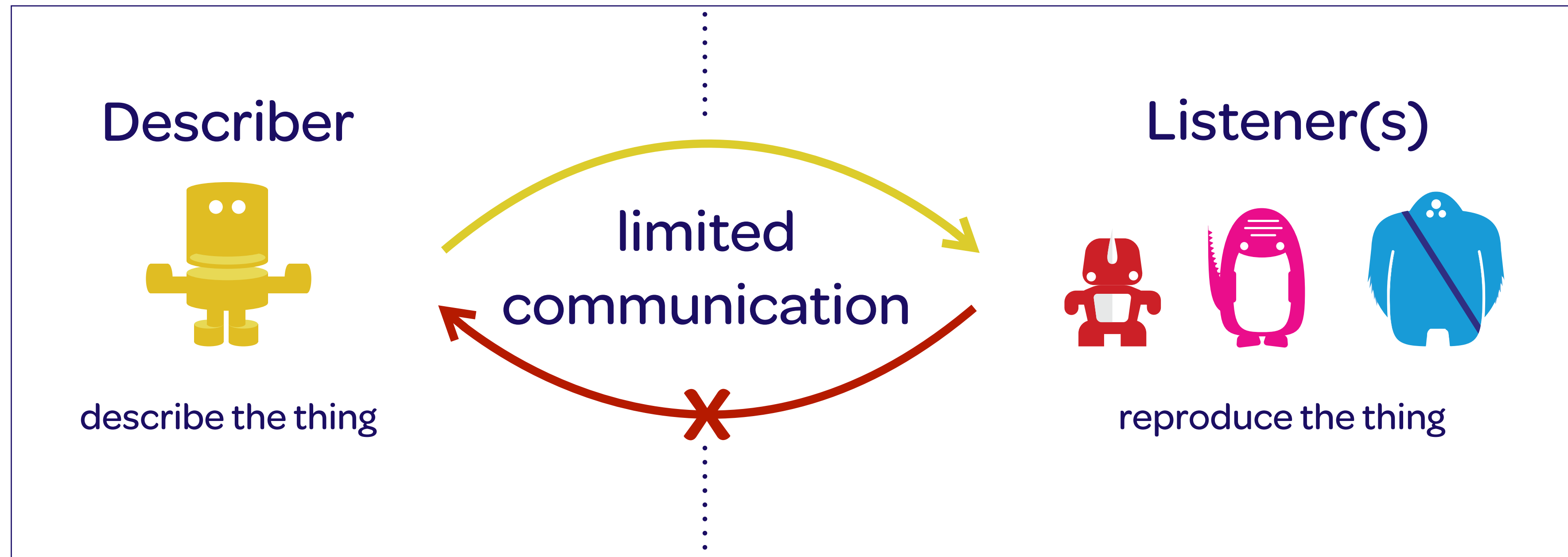


# PICTURE TALK





# “\_\_\_\_\_TALK” STRUCTURE



## Inherent Learning Goals

Communicating clearly (giving clear directions)

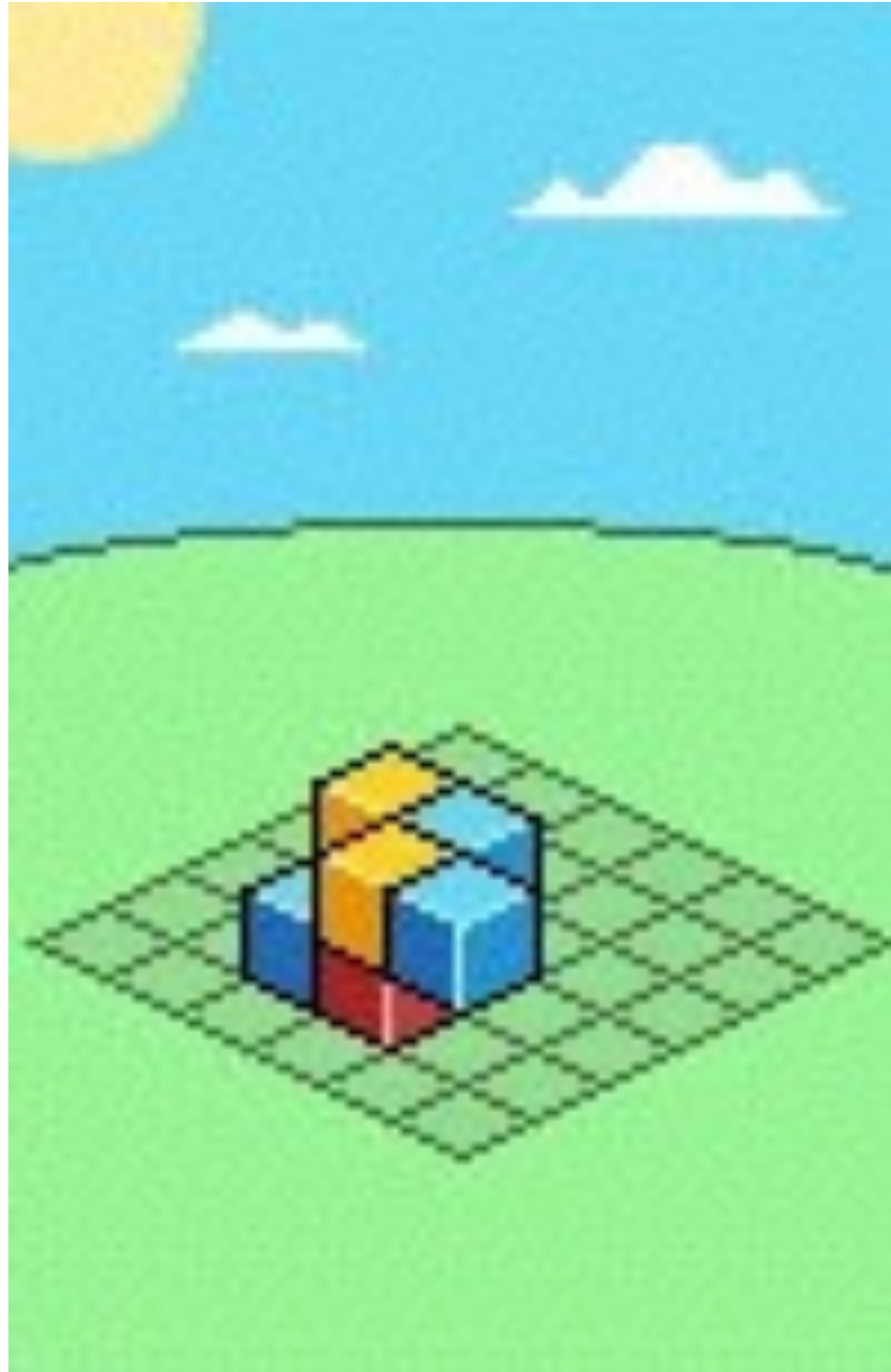
Listening (following directions)

Empathy & Collaboration





# PICTURE TALK MODIFICATIONS



## Block Talk

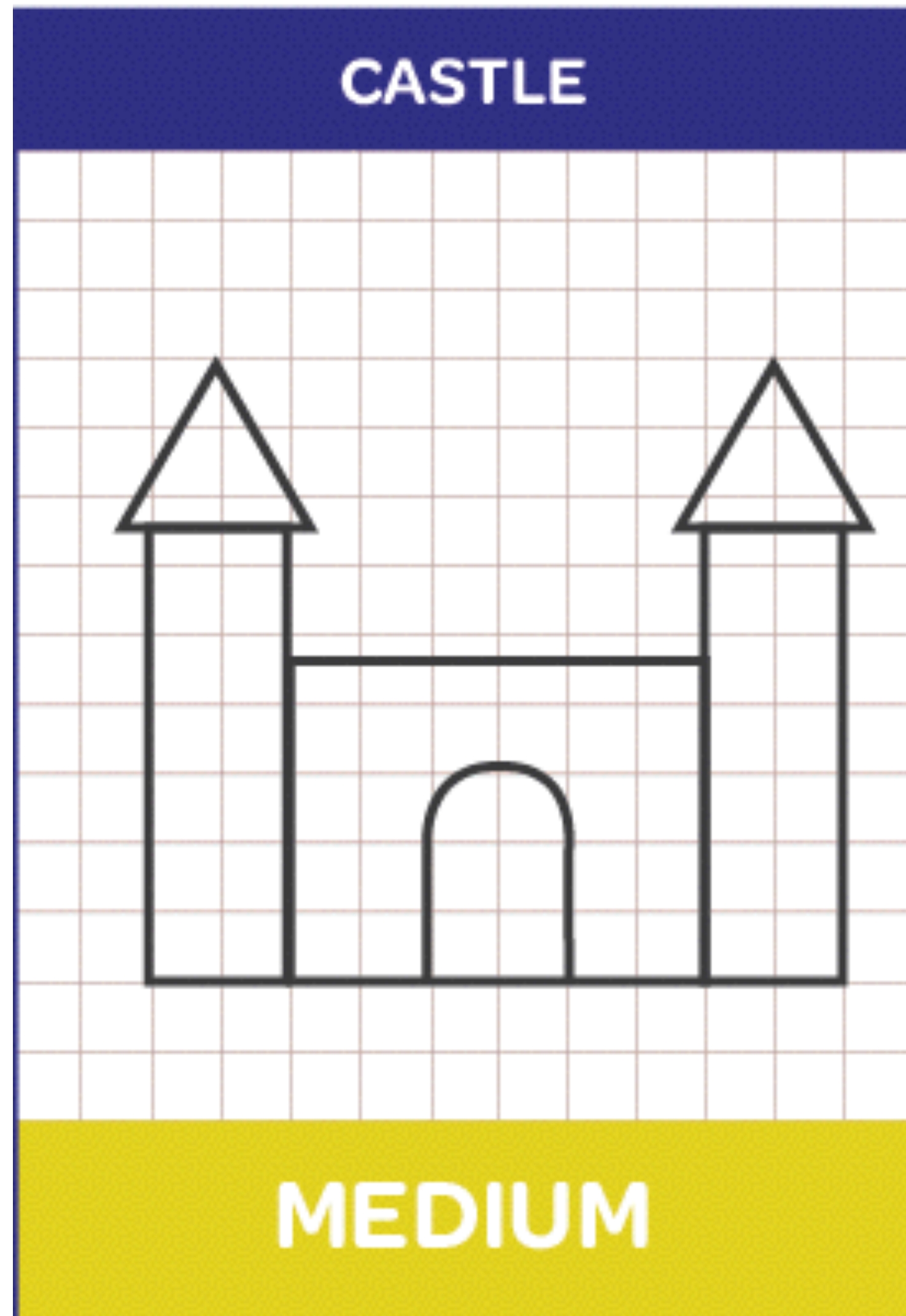
### Learning Goals

- PEMDAS
- Communication





# PICTURE TALK MODIFICATIONS



## Graph Talk

### Learning Goals

- X/Y axis
- Length/Width
- Diameter/Radius





# PICTURE TALK MODIFICATIONS

## LEVEL 1

$$3 = x + 2$$

## LEVEL 2

$$-7x = -49$$

## LEVEL 3

$$4n + 2 = 18$$

## LEVEL 4

$$n/7 - 2 = 0$$

## Equation Talk

### Learning Goals

- Solving Equations
- Describing how to solve equations

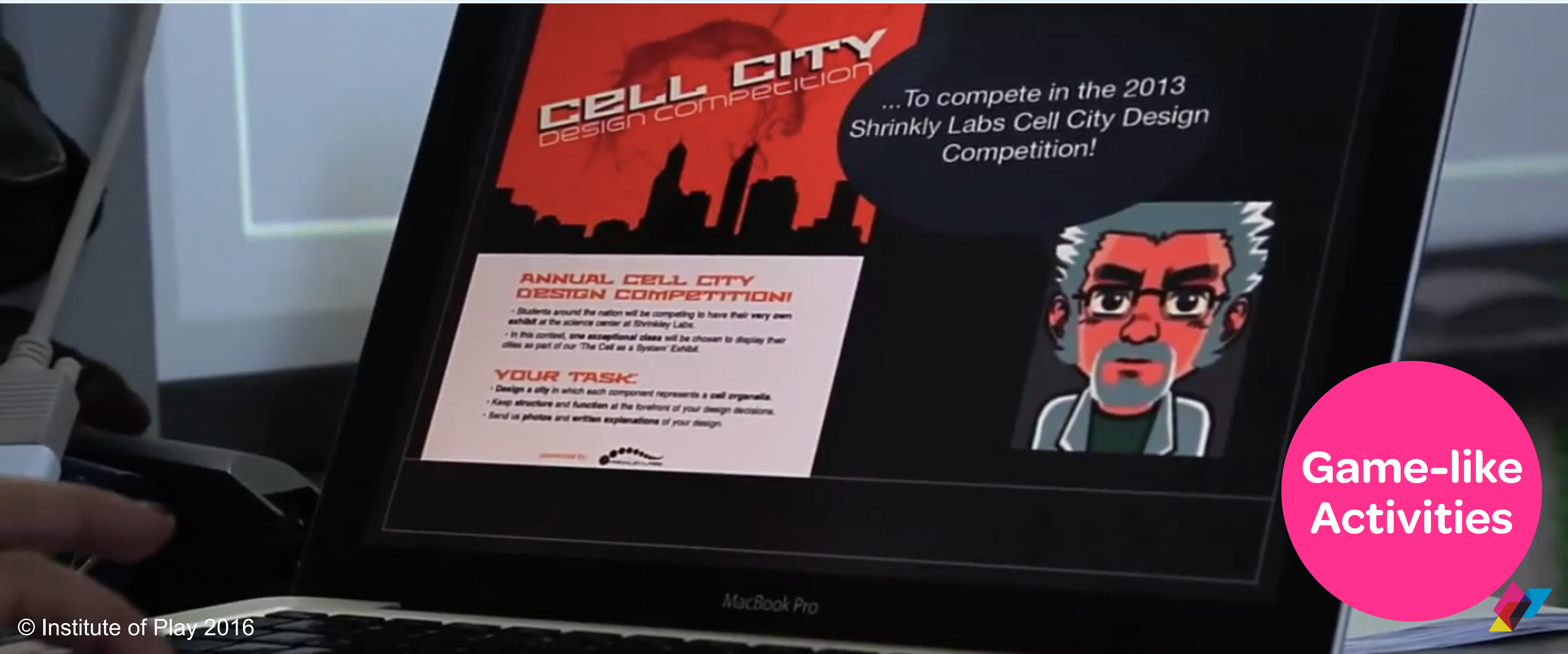






## Game-like Experience

A teacher creates a lesson that puts students in the role of doctor, in support of learning about the body system.



Game-like Activities









## Game-like Experience

A teacher creates a lesson that puts students in the role of doctor, in support of learning about the body system.



Game-like Activities







## Game-like Experience

A teacher creates a lesson that puts students in the role of doctor, in support of learning about the body system.



Game-like Activities





## Game-like Experience

A teacher creates a lesson that puts students in the role of doctor, in support of learning about the body system.



Game-like Activities







## Game-like Experience

A teacher creates a lesson that puts students in the role of doctor, in support of learning about the body system.



Game-like Activities





## Gamified Experience

A teacher creates a point-based structure for classroom discussion.



Gamified Experience

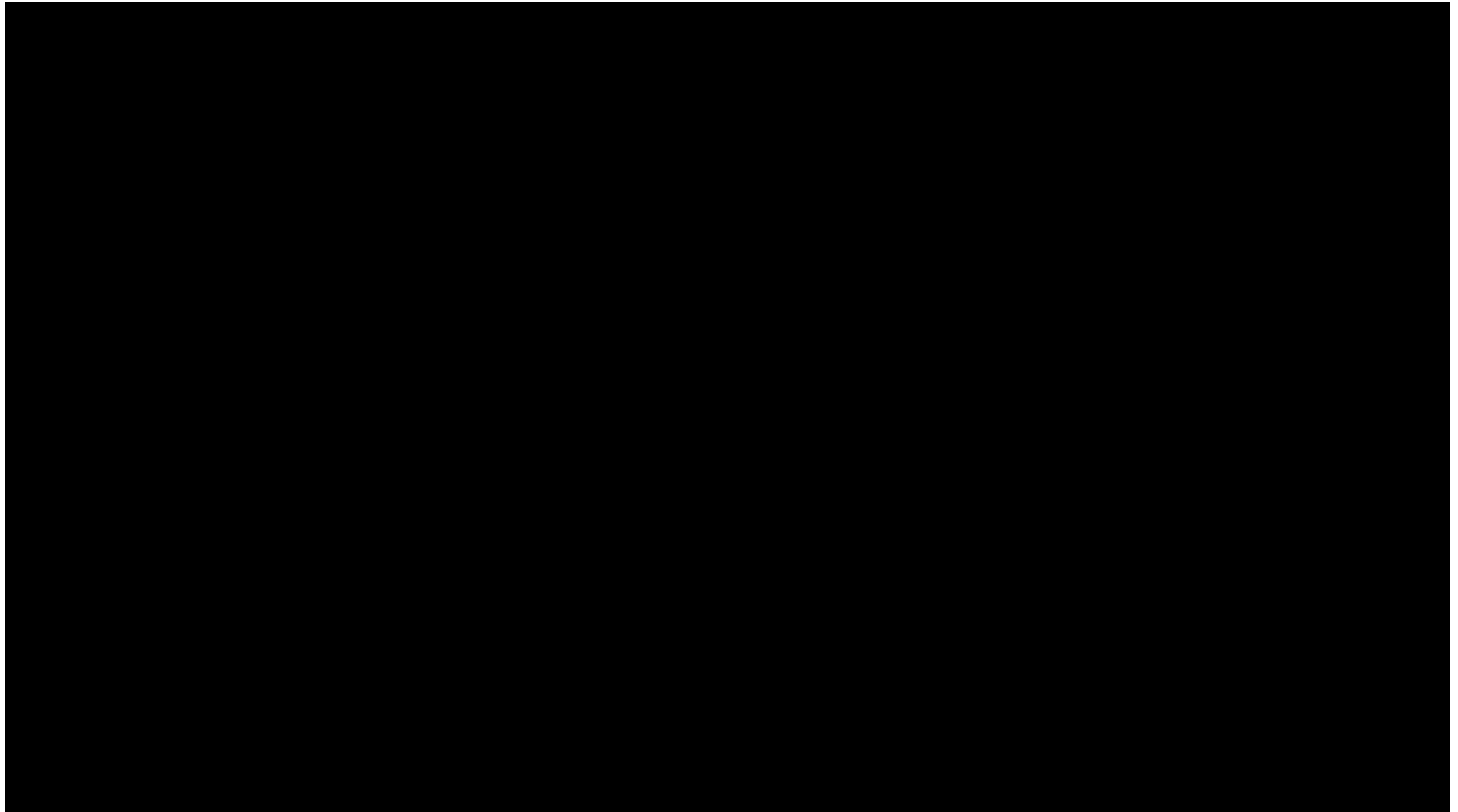






## Gamified Experience

A teacher creates a  
point-based structure for  
classroom discussion.







## Gamified Experience

A teacher creates a point-based structure for classroom discussion.



Agree

+1

"I agree... and..." to build on an argument.



Disagree

+1

"I disagree because..." to refute an argument.



Question

+1

Ask a probing question to get more details about someone's argument.



Use Evidence

+2

Use a quote from the text to support an argument.



Devil's Advocate

+2

Pose a question or situation that is counter to a person's argument.



Connect

+2

Link a person's argument with another person's previous statement.

Gamified Experience





# 5 Secrets of Effective Game-based Learning



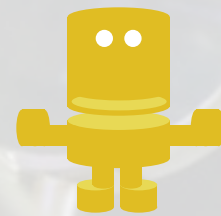
Think of the game as more than just the actual moment of play



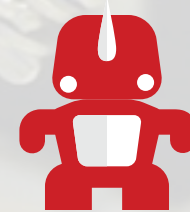
Find collaborators to help you design, evaluate, and test tools



Build practices and structures around expectations for gameplay and technology use



Blend digital and non-digital to create rich learning experiences



Evaluate games for learning potential + engagement





# GAME LIKE LEARNING PRINCIPLES

Everyone is a Participant

Learning Feels Like Play

Everything is Interconnected

Learning Happens By Doing

Failure is Reframed as Iteration

Feedback is Immediate and Ongoing

Challenge is Constant





# LEARN MORE

- Resources for educators:

[bit.ly/iopedes](http://bit.ly/iopedes)

- Visit us: [www.instituteofplay.org](http://www.instituteofplay.org)

- Follow us: [@instituteofplay](https://twitter.com/instituteofplay)

Email us at [pd@instituteofplay.org](mailto:pd@instituteofplay.org)

Summer TeacherQuest

