Robotics in the K-4 Classroom

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Overview

- Introductions
- Why Classroom Robotics?
- Advantages of Robots in the Classroom
- Examples of Robots
- EIU: Central Illinois Classroom Robotics Consortium
- Resources

EIU Math & Computer Science Department

- **Rick Anderson**
  BS, Mathematics, Valley City State University
  MA, Mathematics, Montana State University
  PhD, Mathematics, Portland State University

- **Nancy Van Cleave**
  BS in Ed, Mathematics & Art, EIU
  MA, Mathematics, EIU
  MS & PhD, Computer Science, University of Kentucky
  (originally from Arcola; taught at Hutsonville '75–'79)

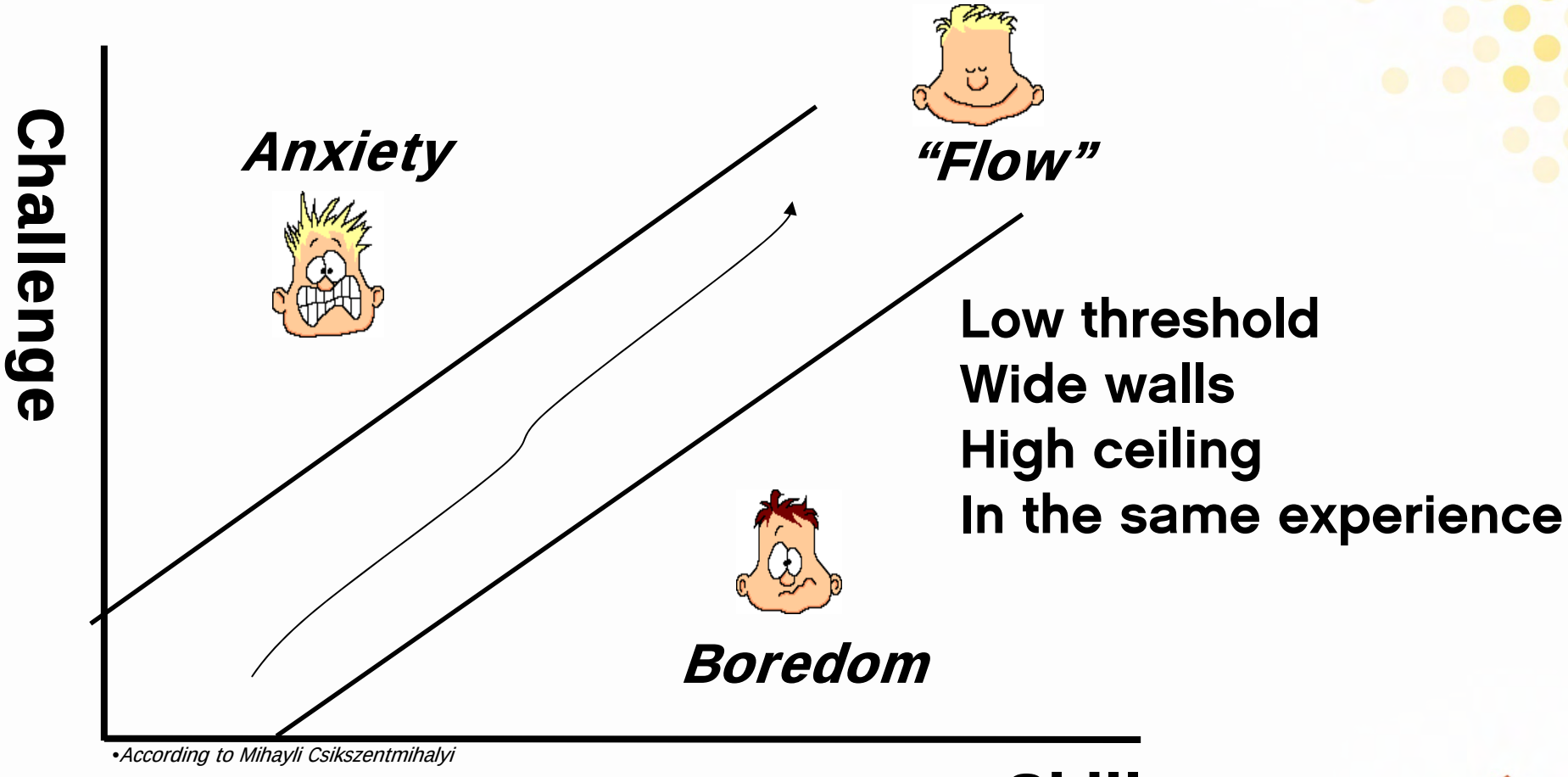
Robots in the Classroom: Why?

- **Academics**
  Interdisciplinary: STEM and Language Arts
- **Motivational**
  Entertaining, captures imagination, immediate feedback
- **Learning**
  Hands-on, exploration
- **Technological Fluency**
  Provides a positive experience
- **Standards**

Robots in the Classroom: Student Advantages

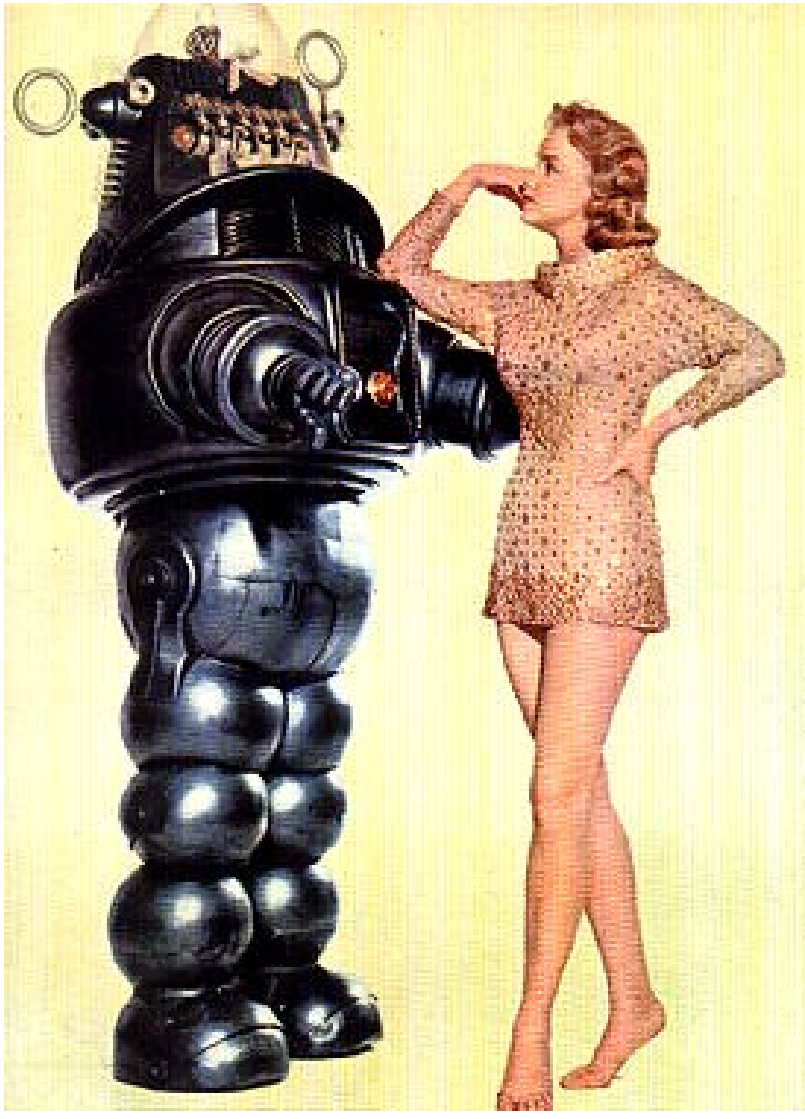
- **Engineering** — building the robots
- **Tech / Computer Science** — programming
- **Math** — critical thinking & problem solving skills
- **Science** — data logging & analysis
- **Language Arts** — storytelling

"Flow"

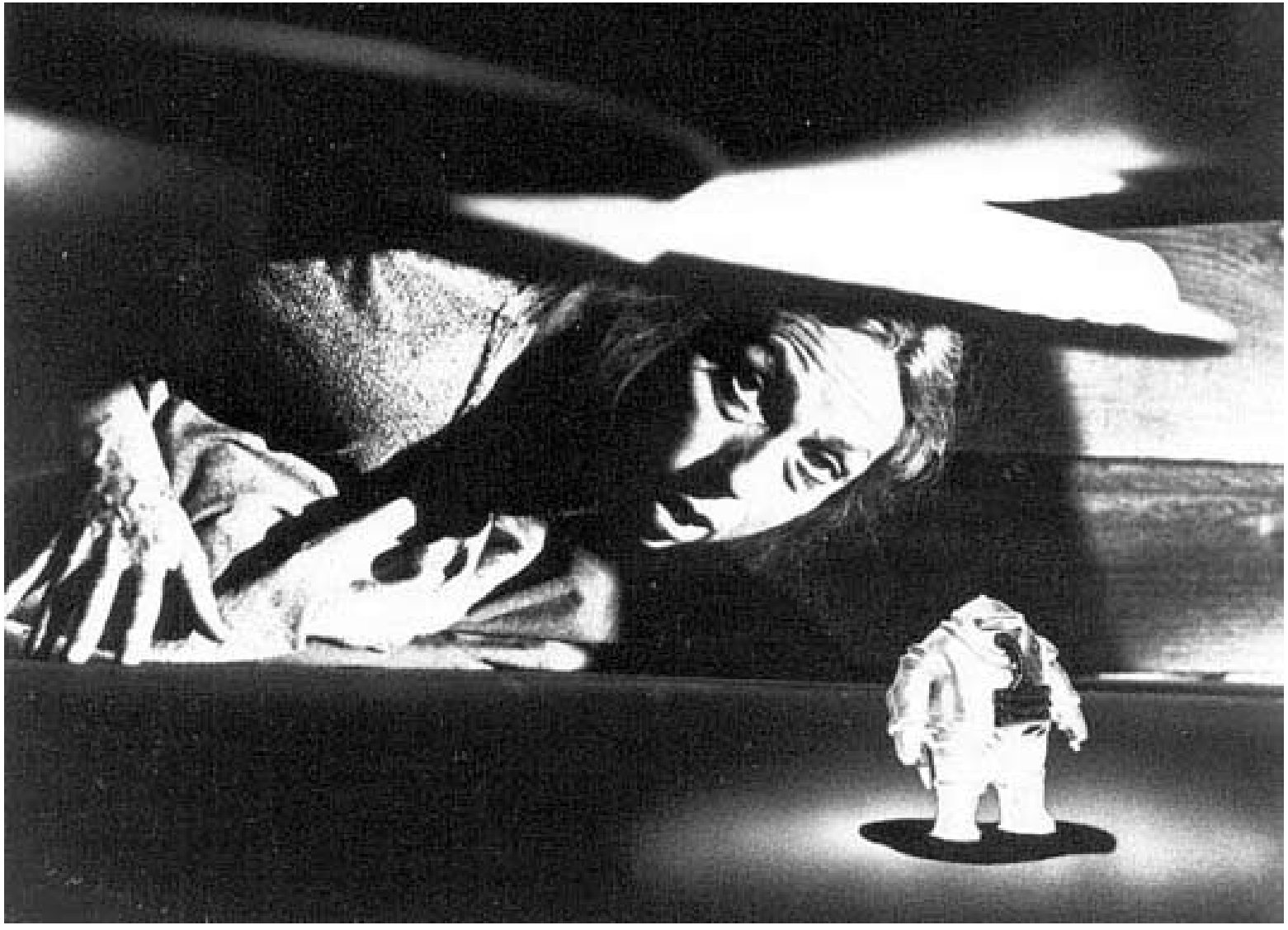


•According to Mihayli Csikszentmihalyi

Examples of Robots: B9 & Robby



Examples of Robots: The Invaders (Twilight Zone)



Examples of Robots: Model Robot

Examples of Robots: Pico Cricket

www.picocricket.com

Meet the PicoCricket

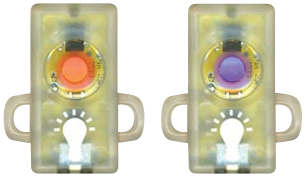
Motor & Motor Board
Make the motor move.

Display
Display numbers.

Beamer
Send programs from your computer to your PicoCricket.

Resistance Sensor
How much resistance is there between the alligator clips?

Sound Sensor
How loud is the sound?



Colored Lights
Light up any color.

Sound Box
Make a melody or rhythm.

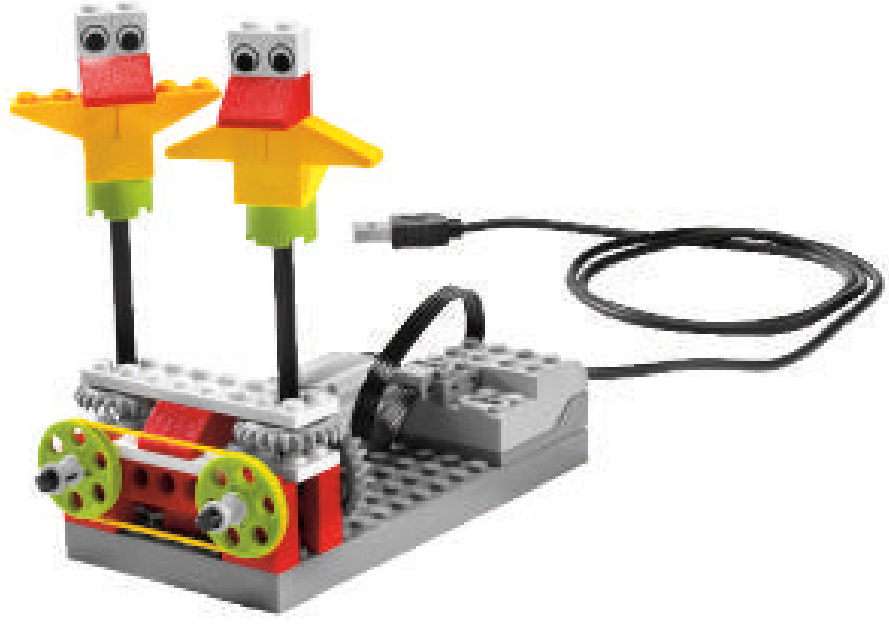
PicoCricket
Program it to control your creations.

Touch Sensor
When is the button touched?

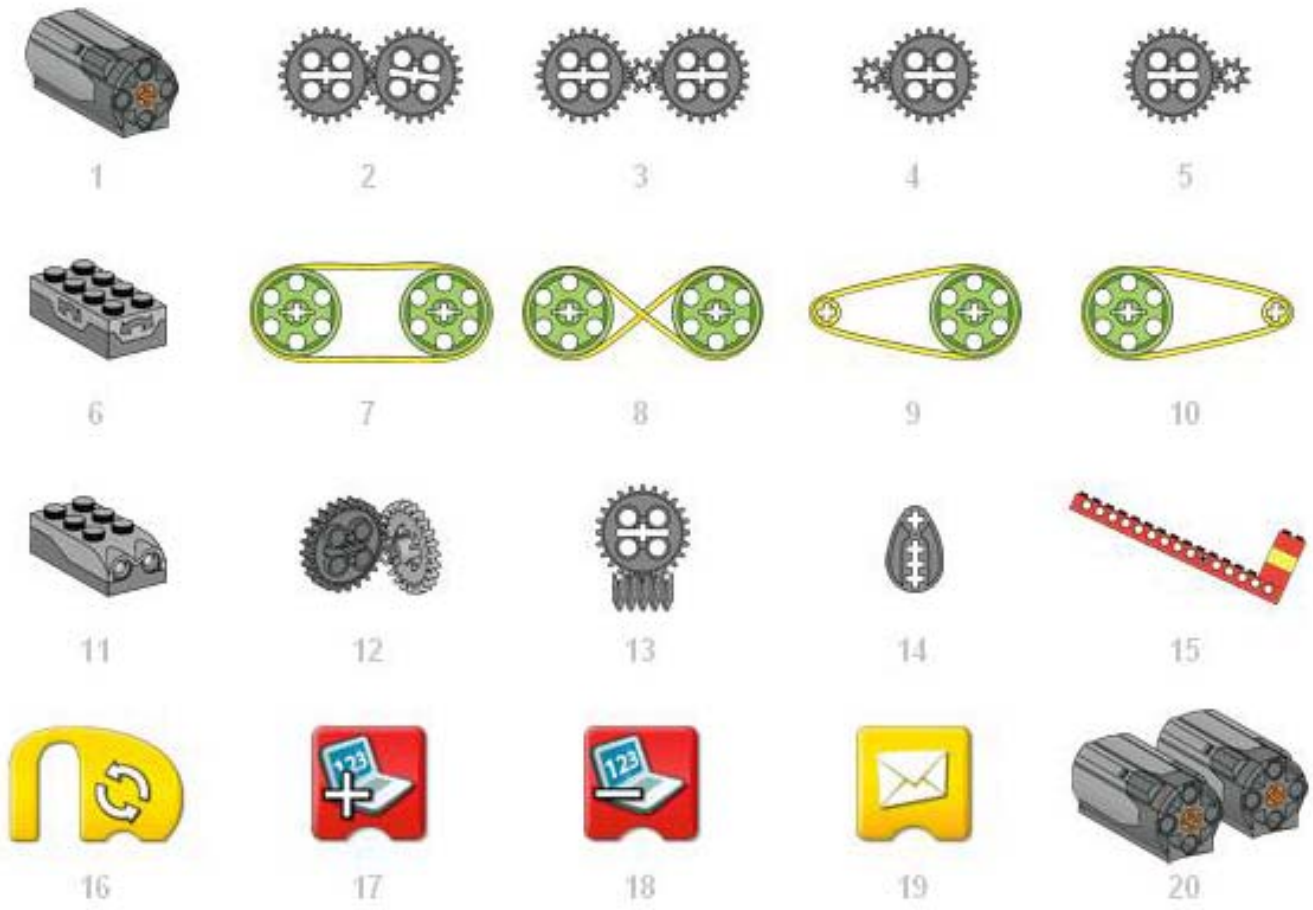
Light Sensor
How bright is the light?

Plug in the parts, program, and play

Examples of Robots: Lego WeDo



Getting Started



Projects

Amazing Mechanisms

Wild Animals

Play Soccer

Adventure Stories

Examples of Robots: Lego Mindstorms-NXT

Classroom Robotics Symposium - July '09

CRS - July '09 - Andrew Mertz, EIU

CRS - July '09 - Patty Davis, Olney

CRS - July '09 - Joan Henn & Peter Wiles, EIU

CRS - July '09 - Ken & Vince, EIU Alums

EIU Classroom Robotics Consortium — Our Goals

- Provide **training** in using robots in your classroom
- Provide **robotics kits** to check out – as early as Spring 2010
- Provide a **repository** of information and lesson plans; a web site is in place
- Provide EIU **students** to help in your classroom
- Provide a place and means of sharing information and support through **(summer) symposiums**

Resources Through: www.eiu.edu/~robots

- links to other sites of interest: organizations
- links to robotic kit homepages
- academic resources
- book lists
- competitions
- girls and engineering
- contact information

Time for Some Hands-on Activity

Get Out of Your Seats

and

Check Out Some Robots!

Thank you for attending our talk...

Keep in Touch!

Rick Anderson

Nancy Van Cleave