Integrating Lego Robotics Into a 5th Grade Cross Curricular Unit to Promote the Development of Narrative Writing Skills

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Integrating LEGO Robotics Into a 5\textsuperscript{th} Grade Cross Curricular Unit to Promote the Development of Narrative Writing Skills

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Collaborators on Project

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Purpose of Intervention

• Improve student writing
• Create an engaging cross-curricular experience for students
• Incorporate *more* learning in *less* time
• To stretch the boundaries of previous robotics interventions
Informal Pilot Study

• Unit developed based upon experiences from prior school year
• Conducted over the course of 4 weeks
  – 2.5 hours each week
• 16 students in first session, 12 students in second session
• Students transported to campus
The Scenario

• Students read an article about the bombing of Hiroshima during WWII prior to beginning robotics intervention

• Hiroshima scenario guided the Final Challenge and “large” writing tasks

• Final Challenge integrated real-world knowledge of Hurricane Maria in Puerto Rico

• Final writing activity integrated real-world experiences with Hurricane Irma
The Unit

Four day unit incorporating robotics education, building, programming, collaboration, problem-solving, planning, engineering design, history, math, and ELA

Day 1: Introduction to robots
Build robot with color sensor attachment
Programming basics
Reflective writing
The Unit

Day 2: Quick review of robot’s functions
Introduction to turns
Programming tasks
Introduction to Final Challenge
Proposal Development
Day 3: Review of robot’s functions
Review of programming blocks
Presentation of proposals
Programming of the Final Challenge
Reflective writing
The Unit

Day 4: Discussion – questions and review
Complete Final Challenge programming
Whole class presentations
Presentation of Culminating Activity
Writing time
Results

• Improved writing skills
• Understanding of the events of Hiroshima
• Improved collaborative skills
• Improved problem-solving skills
• Basic knowledge of building and programming robots
• Student engagement
• Robotics can be incorporated into content areas outside of the traditional STEM disciplines
Thank you!

Questions?

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Hiroshima – Final Challenge

Field Used for First Group

Field Used for Second Group
Proposal

• What is the problem?
  1-2 sentences

• What is your solution?
  4-5 sentences

• How do you plan to implement your solution?
  What will you need to do? What will your robot need to do? How will you accomplish this?
  5-10 sentences