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Article Proposal

Topic: Exposing preschoolers to coding and the engineering design process

Standards: NGSS- Use and share observations of local weather conditions to describe patterns over time. [K-ESS2-1](#)

NGSS Science and Engineering Practices

Constructing Explanations and Designing Solutions

- Use tools and/or materials to design and/or build a device that solves a specific problem or a solution to a specific problem.

Objectives:

Primary objective: The students will recognize the weather changes as the seasons change.

People dress according to the season/weather (**Evaluate section**).

Level one: The students will **recall** the names of the seasons (**Explore, Explain, Elaborate sections**).

Level two: The students will **categorize** pictures based on their seasonal appearance (**Explore section**).

Level three: The students will **draw conclusions** based on verbal clues given about phenomena seen during different seasons (**Elaborate section**).

Level four: The students will **plan and create** a book and coded program to show seasonal activities during each season of the year and the students will engage the EDP to create an object that will provide shade for a playground (**Explain and Extend into Engineering section**).

Audience: Preschool-Kindergarten teachers

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NASA or Endeavor resources/assets: A lesson plan written for the Coding, Robotics, and 1-1 Devices Endeavor class. The lesson integrates Scratch coding in a lesson about seasonal changes. This lesson was rewritten for a Capstone project to include the engineering design process which has been included into the original lesson for the purpose of the article.

Outline:

Introduction

- A. Why engineering in preschool
- B. Why coding in preschool (pending research)

Seasons Lesson

- A. Explanation of the 6E lesson
- B. 6E lesson about seasons

Conclusion