Inquiry Project Design Plan

Teacher/Designer Names: Jacqueline Smith & Nancy Libow	
Name of Project: Plants, Animals, Robots and Me!	**Grade Level: Kindergarten**
Est Launch Date: November 1	**Est Duration (in weeks): 1-2**
Disciplines Involved: Science, Math, ELA, ENL	
Problem Statement: What do all plants and animals, including humans, need?	

STAGE 1: DESIRED RESULTS

Big Idea: Survival

Enduring Understandings:

- In this unit, students will continue to use investigations to look for patterns in what living things need to live and grow.
- Notice patterns and connections in what plants and animals (including humans) need to survive

Essential Question(s):
(MEANT TO BE SHARED WITH STUDENTS)

- EQ: What does it mean to be a living thing?
- Driving Q:What is a non-living thing?
- Driving Q: What do living things and non-living things need to survive?

Established Goals (Standards, Performance Indicators, Learning Goals):
*choose relevant standards to unit/project plan timing and learning goals; do not need to use all disciplines below.
** unpack into SWK and SWBAT under identified standards as this will lead to aligned assessment design

Science Standards:
K.SCI.4. [K-LS1-1.] Uses observations to describe patterns of what plants and animals (including humans) need to survive
a. Observes and describes diferent animals' need to take in diferent kinds of food
b. Observes and describes plants' need to have light
c. Observes and describes all living things' need of water and other materials to live, grow, and thrive

Possible Activities to support standard: Explorations with plants in closet, in glass of water, on window sill giving water + window sill no water – Students observe and report on changes, noticings, wonderings.

Mathematics Standards:

NY-K.CC Counting and Cardinality
Know number names and the count sequence.
1. Count to 100 by ones and by tens.

Activity to support standard: Students will use blocks/concrete representation (meter stick) to count and measure steps for the robot.

ELA Standards:
KRF1b: Recognize that spoken words are represented in written language by specific

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sequences of letters.
ENL: NLAP Students will be able to listen, speak, read and write in English using the target vocabulary.

Activity to support standard: Students will name and label pictures for the Needs of Living Things chart. SWBAT explain why/how the Living or Non-Living thing needs/does not need what is pictured.

Technology Standards:

- **NYS Computer Science and Digital Fluency:**

K-1.CT.3 Identify ways to visualize data, and collaboratively create a visualization of data.

- **ISTE: 1.6 Creative Communicator**

Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.

Activity to support standard: Students will create a chart for the Needs of Living Things and use the robot to explain the chart and connections of all Living things.

Social Justice Standards:
Diversity 7 DI.K-2.7
I can describe some ways that I am similar to and different from people who share my identities and those who have other identities.

Activity to support standard: Students will name and label pictures for the Needs of Living Things chart, including humans and make connections.

Links to Standards/Reference Frameworks:
NGSS, NGSS by DCI Nat'l C3 SS Framework, NYS K-8 SS Standards, Common Core, ISTE, Learning for Justice Social Justice Standards, CASEL SEL Framework, NYS CS and Digital Fluency

Students will know (SWK):	**Students will be able to do (SWBAT):**
Plants need water, air, sun and soil to survive. Animals and Humans need water, air, sun and food to survive. Living things are alive and grow Non-living things are not alive All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow.	**SWBAT draw and write about the needs of living things (plants, animals + humans)** **SWBAT speak about the needs of living things.** **SWBAT work collaboratively to create a chart about the needs for one living thing and a non-living thing (Robot)** **SWBAT present their findings to an audience of parents and students.**

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STAGE 2: EVIDENCE & ASSESSMENTS:

Performance Task Narrative:

Goal: P*rovide a statement of the task. Establish the goal, problem, challenge, or obstacle in the task.*
Students will understand and identify the needs of all living things. Students will apply mathematical skills (counting) and measuring using concrete materials and ELA skills of drawing and writing to create a "chart" that will show the commonalities of all living things. *We use the word "chart" to represent the path the robot will follow as it stops at each "station" that indicates what plants, animals and humans, and Robots need to survive.*

Role: *Define the role of the students in the task. State the job of the students for the task.*
Scientist, mathematician, note taker, designer, speaker

Audience: *Identify the target audience within the context of the scenario.*
Fellow living things (classmates, teachers, parents)

Situation: *Set the context of the scenario. Define the narrative.*
Every animal, human and plant on Earth has specific needs to survive. There is a commanality in the needs of all living things.

- **Product(s):** *Clarify what the students will create and why they will create it.*
- Picture-word cards for new vocabulary
- "Charts" of the Needs for Living Things (Plants, Humans, Animals)
- "Chart" of Needs for Non-Living things (Robot)

Standards (criteria for success): *Provide students with a clear picture of success. Identify specific standards for success.*

- ❑ Accurately label/identify pictures of the needs for living things
- ❑ Incorporate findings from research about Living things/ Non-living Things

Other Evidence/Assessments:

Plants, animals, robots & me K rubric.docx

STAGE 3: THE LEARNING PLAN:
Continues on next page

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Learning Activities

Unit 1 Engineering Design Process HMH Into Science

Learning Goals:
September + October: Complete Unit 1 in HMH Into Science
FUNomenal STORY A Bigger Bubble

Lesson Objective: Children can use a design process to design a bubble wand that will allow others to blow bubbles.
Exploration 1
Exploration 2

SMARTBOARD Notebook File in Artifacts: Science Kdg Unit 1 + 2
***SmartBoard file includes HMH Teacher guide, story, questions, links and directions for exploration. SmartBoard file created by Jacqueline Smith.**

Notes/Resources:
If possible, in OCTOBER - Get a robot as a "class pet" where students begin learning how to take care of it and the basics of its capabilities. This robot will serve as an example of non-living things. It will help set up the various explorations with plants.
Ex: Robot will be kept in a locked closet; later on when the plant is kept in the closet, it will not thrive. Robot will get plugged in for recharging; later on students will see that plugging in a plant will not help it survive.
Additionally lessons will be needed so SWBAT program the robot.
As a class, create a chart with picture clues that match some of the menu options for Dash Robot.
As a class, create a program for the robot to move forward and say something that was recorded. (Possible idea is to have robot move along a path of the alphabet)

HMH Unit 2: Plants and Animals (mid-October)

LESSON 1 What Plants Need Activity Guide pp. 16–25
Children explore the anchoring phenomena that sometimes a plant's leaves will wilt and lose color.
SEP Analyzing and Interpreting Data;
Scientific Knowledge is Based on Empirical Evidence
DCI LS1.C Organization for Matter and Energy Flow in Organisms

Objective: Children can use observations as evidence to explain a pattern of what plants need to live and grow.

FUNomenal STORY A Plant for Raja

***SmartBoard file includes HMH Teacher guide, story, questions, links to YouTube video and song and directions for exploration. (Science Kdg Unit 2) created by Jacqueline Smith**

LESSON 2 What Animals Need Activity Guide, pp. 26–35
Children explore the anchoring phenomena that some people use nets in gardens.
SEP Analyzing and Interpreting Data;
Scientific Knowledge is Based on Empirical Evidence
DCI LS1.C Organization for Matter and Energy Flow in Organisms
CCC Patterns

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Formative Assessments: Unit Readiness Check: Are You Ready? Activity Guide Unit 2 Test FUNomenal Story Unit 2 Test Performance-Based Assessment
Notes/Resources: **YouTubePlaylist:** **https://youtube.com/playlist?list=PLb8yHDJkwiIx6zdFYxSzjfJDAXrULy41J&si=cu2adW1h-jLJIG0o**
Make Connections! PBL
Learning Events: **Class Discussions** **Singing songs about Needs of plants or animals** **Coloring pictures of the needs**
Formative Assessments: **Using Thumbs Up/Thumbs Down SWBAT to respond to questions throughout lessons. Ex. Do plants need sun? Do robots needs sun? Is "this" a need for plant/robot/animal? ("this" would be item/picture that comes up in discussion)**

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Culminating Project
Students will work in groups to create a chart for the robot to “read” about the needs for the assigned thing.
3 Groups: Plants, People + Animals, Robots
If you have access to more than 3 Dash Robots, then People + Animals can be broken into 2 groups.

As a class, SWBAT create a chart answering the EQ: What do Living and Non-living things need to survive.
Using the chart, SWBAT draw, label and explain the needs for their assigned thing.
Working as a group:
SWBAT organize the data as a pathway for the robot to move along.
SWBAT record a statement explaining the card’s connection to assigned thing.
SWBAT program the robot to move forward the number of steps to reach a card, stop at a card and say something about the card.