**Title**:Learn Science and Engineering through projects with Lego WeDO 2.0
**Topic**: Pulling: What makes objects move?
**NASA integrated assets**: My professional development integrates NASA assets by promoting innovative and informative educational materials that engage students interest in science, technology, and engineering.
**Proposed Audience**: Teaching staff in the Dixon School District.
**Teachers Served**: The teachers I will serve with my Professional Development activities are the PreSchool teacher, the 2nd/3rd grade teacher, the 3rd/4th grade teacher, the 5th grade teacher. The 6th/7th grade teacher, the 8th grade teacher, the counselor, the special education teacher, our 3 paraprofessionals and our Principal.
**What STEM concepts or learning goals will you and your materials address which can potentially replace other classroom activities:** The learning goal that my materials address is the topic about force and motion that was explored and explained in detail by Sir Isaac Newton. This project is about investigating the effects of balanced and unbalanced forces on the movement of an object and replaces traditional paper and pencil lessons that students can only read about rather than experiencing or creating.
**Next Generation Science Standards and Common Core State Standards:**
NGSS performance expectation
3-PS2-1: Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.
Common Core State Standards for English Language Arts
CCSS.ELA-Literacy.W.3.7: Conduct short research projects that build knowledge about a topic.
CCSS.ELA-Literacy.W.3.8: Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.
CCSS.ELA-Literacy.SL.3.1.a: Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
CCSS.ELA-Literacy.SL.3.1.d: Explain your own ideas and comprehension in light of the discussion.
**Professional Development location**: My professional development session will be held in my school on a regularly scheduled Pupil-Instruction Related day in the school's computer lab.
**Session time:** My professional development session will be 1 hour long.
**When:** March 2, 2020.
**Access to computers:** Teachers will have access to computers, IPADS and Lego Education WeDo 2.0 Core Sets.
**Pre-Survey Questions:**
1. Have you ever implemented engineering activities into your curriculum?
a. Yes
b. No
c. Unsure
2. Do you feel that they were successful?
a. Yes
b. No
c. Unsure
3. Have you used Lego ® Education 2.0 Core set before?

a. Yes
b. No
c. Unsure
d. If yes, what did you feel was the biggest obstacle?
5. Do you currently have access to any engineering activity resources?
a. Yes
b. No
c. Unsure
6. If yes, how frequently do you use them?
a. Never
b. At least once/week
c. At least once/month
d. At least once/trimester
e. At least once/year

**Post-Survey Questions:**

1.Do you understand how the Lego Education WeDo 2.0 Core Set strengthens students' understanding of the eight science and engineering practices, including developing and using models, planning and carrying out investigations, analyzing and interpreting data, using mathematics and computational thinking, constructing explanations and designing solutions, engaging in argument from evidence, and obtaining, evaluating and communicating information?
a. Yes
b. No
c. Unsure
2. Will you use the LEGO Education WeDo 2.0 curriculum in your classroom?
a. Yes
b. No
c. Unsure
3. Are you interested in using any other engineering curriculum in your classroom?
a. Yes
b. No
c. Unsure
4. What do you foresee as the biggest obstacle implementing engineering design into your current curriculum?
5.Would you like to implement more STEM based lessons/projects during our school's Visions time?
a. Never
b. At least once/month
c. At least once/trimester
d. At least once/year

**Outcomes/Expectations for educators:** Because the LEGO Education WeDo 2.0 curriculum pack is built on Next Generation Science Standards and facilitates a clear, easy to follow journey through engineering, earth, physical, life and space sciences, I hope to inspire my coworkers to implement more NGSS instructional content into their current curriculums.

**Follow Up:** We have all staff meetings once a week throughout the year. I plan to use a few minutes in the 1st meeting of each month of these meetings to check in with my colleagues to see

if they have used the Lego WeDo Curriculum or any other engineering design activities in their classrooms. If so, how did it go? Will they implement another or a first one soon? Did they find that it enhanced or supplemented their curriculum well? Do they want to use their lesson during our Visions time? Since we all work in the same building, they can also contact me whenever they have a question about the process and/or implementation. I will make sure they know this at the professional development.

**Data Collection Methods:** I will create a survey using Google forms to analyze the PD's success.