

Clinical Supervisor/MAT Student	School/Room Number	Subject/Grade Level/Number of Students	Period(s) Starting/Ending Times	Date(s)
Lindsay Snowden	Swainsboro Middle School	7 th Grade Life Science		

M.A.T. Lesson Plan Format

State/National Standards: (CC/STANDARDS, <i>Written statements</i>)		S7L4. Obtain, evaluate, and communicate information to examine the interdependence of organisms with one another and their environments. c. Analyze and interpret data to provide evidence for how resource availability, disease, climate, and human activity affect individual organisms, populations, communities, and ecosystems.	
Essential Question: (Big Idea, goal)	How do engineers work in the science field?		
Instructional Objective(s): <ul style="list-style-type: none"> SWBAT <i>hypothesize</i> a model for building a robotic hand. SWBAT <i>fabricate</i> a movable hand through inquiry-based practices. 		Assessment for each objective: <ul style="list-style-type: none"> SW create a draft on how they think they can build the hand. SW build a movable and functional hand with the restrictions of the materials given to them. 	
Academic Language: Vocabulary		Academic Language Objective(s): Function <i>Hypothesize:</i> Students will use <i>hypothesize</i> when creating their drafts for how they want to build their robotic hand. <i>Fabricate:</i> Students will use <i>fabricate</i> when actually building their robotic hand.	

DESCRIPTION AND PRESENTATION OF THE LESSON

Part I: Lesson Introduction/Anticipatory/Introductory Set (10 min.)

- On the board will be displayed a Google Hangout session with one of Dr. Alba-Flore's students who works with the robotic hand.
- He will explain to the students how the hand works and show them a display of it working.
- He will allow for a chance for students to ask him questions.

Part II: Developmental Activities (40 min.)

- The students will be told that they are going to create their own version of a robotic hand.
- They will not be given direct instructions but will be told to be creative as they can with the materials given to them.
- The students will only be allowed to use the following materials
 - Straws, scissors, tape, glue, foam paper, string, and cardboard.
- The requirements include that the hand has to be able to bend the fingers.
- The students will be placed into groups and each group will create one hand.
- The students will be told that each member must create a draft of how they think the hand will work and what materials they are to use.
- After each student has done their own draft, they will be asked to choose one plan from the group and begin

Clinical Supervisor/MAT Student	School/Room Number	Subject/Grade Level/Number of Students	Period(s) Starting/Ending Times		Date(s)
Lindsay Snowden	Swainsboro Middle School	7 th Grade Life Science			

construction.

- On a sheet of paper, the students will be asked to explain why they chose each of the material and for what piece they chose it for. They will also explain at least 2 ways they could improve their hand if they were able to create it again after seeing and hearing other groups' ideas.
- Once they are finished the students are to turn the papers in and present the hand to the teacher to prove that it is movable.

In order to address the language function *hypothesize*, the students will create drafts, or hypothesis, in which they think their hand will be able to be movable. I want the students to use *hypothesize* to work towards the engineering practices of creating a draft and working from it.

In order to address the language function *fabricate*, the students will create their own working hand based on the constraints of the materials given to them and time in the class period. This will be an inquiry-based practice as the students are given the freedom to create their robotic hands however they would like, as long as they abide by the constraints given to them.

Part III: Concluding Activities (Closure) (5 min)

- On the board, "How do you think we can use robotics like the hand in real life?" and "Why do you think this is important to learn robotic engineering in the future?" will be posted.
- The students are to participate in a think-pair-share, where they answer the questions themselves then talk to the person next to them about the ideas they came up with.
- After they talk to the person next to them, they will share with others at their table. After the table discusses their ideas, each table will share to the class what they came up with.

Part IV: Resources/Ancillary Materials Used

Straws
Scissors
Tape
Glue
Foam paper
String
Cardboard