TITLE:
Steam Engine: Motion, Force, and Energy

DEVELOPED BY:
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ART FORM:

__x__ Dance/Movement
__x__ Drama
____ Music
____ Puppetry
____ Multi-disciplinary /_____

OBJECTIVE(S)/GOAL:
Children will be able to:

- understand and demonstrate movement, energy, and force
- understand how different things move

CHILDREN'S PRIOR KNOWLEDGE NECESSARY FOR THIS EXPERIENCE:

- forms of transportation
- trains move people quickly

VOCABULARY

Arts Vocabulary
Locomotor movement
Non-locomotor movement

Curriculum Content Vocabulary
Kinetic Energy
Force
Motion
Push
Pull
Engine car
Caboose
Engineer
Conductor
Steam
Pistons
Pods
Wheels

MATERIALS NEEDED:

Coffee can
Small toy train engine
Small toy caboose
Train engineer or train conductor

MAIN EXPERIENCE:

Introduction:
"What is Force? A push or pull that can change the position of an object and put it in motion.

(*Form a circle holding hands. Demonstrate push and pull by pulling hands/bodies into the center of the circle and then pushing out to the original circle)

"The stronger the force, the faster and farther an object can go. How do we use force to open the door? How do we use force to move an object, book, or ball? What happens when we use more force?"

Train Song: *(Played with drum, and the students will create movements)*

Chug Chug Chug
Puff Puff Puff
Ding-Dong Ding-Dong
Ding Dong Ding Dong

Main Experience:
Read or picture walk the book *Trains* by Byron Barton.
(Discuss what an Engine Car, Caboose, Engineer, and/or Conductor does.)

"How Do Trains Move?"
(Demonstrate the role of force of the train using steam, pistons, rods, and wheels.)

1. Coal is heated (Smoke from the coal comes out of the top of the train).
2. The heat boils water.
3. The steam builds up pressure and pushes the pistons.
4. Pistons push the rods.
5. Rods push driving wheels and the train moves.

(Again reiterate the stronger the force, the faster and farther an object can go.)

Students Role-Play Each Part of the Steam Engine
The students will stand in line with their hands on the shoulders of the person in front of them to create a train. Other students will create the train tunnel, train crossing stop, etc.

Students can also come forward and pretend to be train cars. Sitting students sing the train song chant noted above.

Closing

All Aboard (Chuga Chuga Chuga Chuga)
All Aboard (Chuga Chuga Chuga Chuga)
Here We Go (Choo Choo)

INTENTIONAL QUESTIONS:

***Open-Ended* (i.e. children contributing possibilities, thoughts)**

Ex: What do you observe? What do you notice? How does a train move?

***Demonstration* (i.e. "show me…")**

Ex: Show me how a train moves.