DEVELOPING SELF-CONSTRUCTED VISUAL INSTRUCTIONAL MATERIALS FOR THE LESSON ABOUT COMETS

Objective: This study was conducted in order to increase the achievement of learning competencies in comets through self-constructed visual instructional materials.

Paul Anton D. Mahinay, LPT [1,2]

[1]Department of Earth and Space Sciences, Graduate School, Rizal Technological University, Mandaluyong City, 1550, Philippines

[2]Science Learning Area, Junior High School Department, Pasig Catholic College, Mallinao, Pasig City, 1600, Philippines

The K to 12 science curriculum of the Philippines provides competencies that aim the Filipino learners to demonstrate understanding in science concepts and application of scientific-inquiry base skills. In this curriculum, topic about comets is one of the astronomical concepts taught in the secondary science and to make the discussion effective, based from Socias (1987) and Aquino (1988) used of visual instructional materials can augment the learning of the students. Thus, the researcher developed a self-constructed instructional visual materials for the lesson about comets in Grade 8 Level and validated thru standardized achievement test.

Fig. 1: The researcher presenting his self-constructed visual instructional materials.

The researcher created a comet made of crumpled paper and foil. Magnets were attached to it so that it can be placed on the 18x20 canvas to manipulate and demonstrate the movement or the orbit of the comet. Fairy lights were also used to represent stars in space.

Fig. 2.1. Manipulative self-constructed instructional material for comets

Fig. 2.2 Initial testing of the material.

Fig. 2.3. Final testing of the material in class discussion.

Fig. 3.1 Image target for AR.

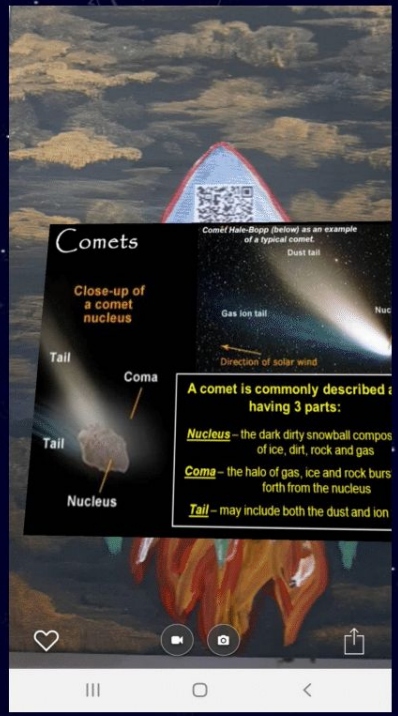

Fig. 3.2. Screenshot from HP Reveal Applications

Fig. 3.3 QR Code based instructional material.

QR code generator and HP Reveal applications were also used to give additional information and to make the materials more interactive and with technology integration. First, the researcher painted a rocket that served as the image target and infographics about comets from google was used for augmented image. The researcher used HP Reveal applications for this material. On the other hand, QR code generator was used to incorporate the story of Rosetta and Philae mission.

Table 1. Grade 8 Science Diagnostic and Achievement Tests- Comparative Results

LEARNING COMPETENCIES IN COMETS	DIAGNOSTIC		ACHIEVEMENT	
	CORRECT % & STANDARDS LEVEL		CORRECT % & STANDARDS LEVEL	
Compare and contrast comets, meteors, and asteroids	54%	PROGRESSING	62%	COMPETENT
Predict the appearance of comets based on recorded data of previous appearances	17%	STARTING	21%	STARTING

The researcher used a standardized diagnostic and achievement test provided by Excelandia I.T. Services. It was constructed in a way that determines and measures the standards level of learning competencies. It utilized scales namely (0%-29%) starting (30%- 59%) progressing (60%-79%) competent (80%-89%) mastering (90%-100%) outstanding. To test Self-constructed Visual Instructional Materials for the lesson in comets, articulation of grade 8 teachers was done and it was used in the discussion of the lesson in grade 8 after the diagnostic test and before the achievement test administered. The results show an improvement on the standards level of learning competencies of grade 8 students when it comes to the lesson of comets after the self-constructed visual instructional materials were used. It indicates that teacher preparation and creativity in the usage of self-constructed visual learning materials can help in improving the achievement of the learning competencies.