Tufts UNIVERSITY | Center for Engineering Education and Outreach

SMART LAB ACTIVITY GUIDE

LEGO ANIMAL

DESIGN CHALLENGE

Choose an animal and create a model of the animal using LEGO.

DIFFICULTY LEVEL

Beginner – no prior experience necessary

MATERIALS

LEGO MINDSTORMS EV3 pieces

INDONESIAN HIGH SCHOOL CORE COMPETENCIES

Biodiversity (Biology, Year X, 3.8)

SMART LAB DISCIPLINES

Science	Math	Art	Technology & Engineering
Biodiversity	Properties of geometric shapes	Tangible art	Building techniques

STUDENT OUTCOMES

- **Introduction to materials:** this activity introduces students to LEGO materials by having students explore and use many different pieces in their kit.
- **Collaboration and creativity:** Students are introduced to an environment where they are encouraged to share ideas and be creative.
- **Basic building skills:** sturdy construction and part connection
- **Presentation skills:** students practice explaining and presenting their ideas to others
- **Collaborative learning:** every group will have a different design, and the entire class can learn different ways of building with LEGO from sharing their designs with each other.
- **Teamwork skills:** students practice teamwork by working in groups. This introduction to teamwork will support their future projects that require that they work with others.

EXAMPLE SESSION – 45 MINUTES

Introduction: 5 minutes
Put students into small groups (preferably groups of two)
Explain the design challenge

Activity: 15 – 20 minutes
Students work on challenge

Present: 10 minutes
Gather the students and have them place their animals on a table. Have each group briefly explain which animal they chose and how they built it.

Share: 15 minutes
Groups should take pictures of their design and post pictures and a short description of their LEGO animal.

POSSIBLE MODIFICATIONS

This activity could be modified to have students build a particular type of animal (such as a sea creature) if a certain type of animal is being studied in class.

POSSIBLE EXTENSIONS

The activity could be expanded by having students build different parts of the animal's environment. This can prompt a discussion about habitats.

When presenting, students could be required to include facts about their animal. Students could also be required to research their animal and then present facts.

This activity could lead to discussions or student presentations on topics relating to biology, physics (animal movement), chemistry (food chemistry, environmental chemistry).

EXAMPLE SOLUTIONS