

COMMON CORE-ALIGNED TASK  
WITH INSTRUCTIONAL SUPPORTS

Mathematics



# HIGH SCHOOL ALGEBRA: AUSSIE FIR TREE

## SUPPORTS FOR ENGLISH LANGUAGE LEARNERS

# GRADE 9 HIGH SCHOOL ALGEBRA: AUSSIE FIR TREE

## Supports for ELLS

**Title:** Aussie Fir Tree *Lesson*

**Grade:** 9<sup>th</sup> grade

### **Linguistic Access:**

In the tasks presented, a distinction between the vocabulary and the language functions is needed to provide entry points to the math content. These vocabulary words and language functions need to be explicitly taught to ensure comprehension of the tasks. Introduce the most essential vocabulary/language functions before beginning the tasks. Choose vocabulary that is essential in each task. The following vocabulary/language functions are suggested:

#### Vocabulary words:

Tier I (Nonacademic language): fir tree, Aussie, mate, reverse, stage

Tier II (General academic language): calculate, explain, describe, consider, generate, determine

Tier III (Math technical language and concepts): square, squaring, patterns, geometrical patterns, function, closed form equation, centimeters (cm)

#### Language Functions: explain, describe

- Pronounce each word for students and have them repeat after you.
- Introduce the vocabulary in a familiar and meaningful context and then again in a content-specific setting.
- Point out words and phrases that have multiple meanings, such as “work out” in question 5a.

### **Content Access:**

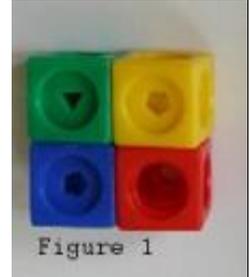
In order to activate prior knowledge and prepare English Language Learners (ELLs) for the demands of the tasks in the lesson, it is suggested that they engage in a different task prior to working on the selected performance assessment tasks, which are described below.

Provide ELL students with blocks. While there are different types of cubes or blocks available commercially, we have chosen a particular type for the purpose of explaining this task which can be adapted to fit any type of connecting cubes or blocks (e.g., Unifix cubes).

1. Show students the four different color blocks and ask them to place them together to form a rectangle as shown in figure 1 (some types of cubes may form a square or rectangle depending on

the total number of blocks).

- Ask the students what would happen if they doubled the number of each of the color blocks (keeping each color group together). The table below can help organize and collect their answers.



Number of blocks	1 block of each color	2 blocks of each color	3 blocks of each color	4 blocks of each color
Total				
Describe the Shape				

- English Language Learners will understand and enjoy this pictorial introduction to growing patterns. Once they begin to notice and describe the patterns found in several classic math patterns, the patterns created by the students will become more sophisticated. Teachers may find that ELLs will naturally start arranging manipulatives to form other figures (e.g., animals, characters, etc.) Capitalize on this natural inclination to "mess around" by challenging students to create their own growing patterns and design an activity their classmates can do. See figure 2.



- Ask the students what kinds of predictions they can make given the new pattern formed. Answers may vary, and not all students will offer very complex predictions. However, teachers can help all students benefit by helping them understand the predictions of other students.

**Scaffolds and Resources:**

- Build prior knowledge.
- The unit outline (on page 30) recommends beginning the unit with a reading to activate prior knowledge about patterns. In addition, some other suggestions are
  - Show videos from your school library

- Internet resources and carefully selected educational TV programs (e.g., from Discovery Channel and from Channel 13's free archives available for teachers) to introduce each unit.
- Refer to the techniques listed on page 31 of the unit outline which provide practical approaches that can be used with ELLs to help them acquire both process and content.
- Recommended resource: *Making Mathematics Accessible to English Language Learners* by John Carr et al.