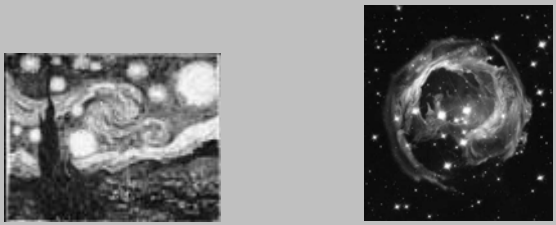
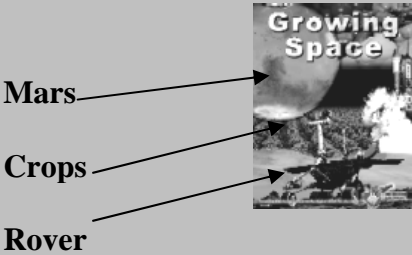


I. Identification	
Lesson title:	Growing Space – Let’s get familiar with it!
Teaching unit:	Space Agriculture in the Classroom
Lesson number in this unit:	1 of 7
Module Correlation:	<i>Growing Space, Volume 2</i>
National Standards:	Science: C, D, G English: 1,4,5,12 Visual Arts: 8.2

II. Specific Instructional Objective(s)	
Students will be able to:	
1.	Name 10-12 space and/or agricultural terms based on the <i>Growing Space, Volume 2</i> cover page (<i>Knowledge domain</i>).
2.	Categorize words and provide justification for word categories (<i>Synthesis domain</i>).
3.	Write and state aloud 6-8 new sentences, in context, from the new terms (<i>Comprehension domain</i>).
4.	Compose a well-organized paragraph using the new sentences (<i>Synthesis domain</i>).

III. Equipment, materials, supplies, books, resources needed for this lesson (attach handouts):	
<ul style="list-style-type: none"> • Enlarged graphic of <i>Growing Space, Volume 2 (GS2)</i> cover (if possible) • Classroom set of <i>GS2</i> (1 per student) • 3x5 cards (approximately 15 per student) • Markers (for creating word card sets) 	

IV. Teaching Model: Picture-Word Inductive Model (Joyce, Weil, & Calhoun, 2004)	
Set/Interest approach (suggested):	<p>Begin by showing Van Gogh’s “The Starry Night” painting (PowerPoint 1). Ask students what they see, what it is, who they think painted it, when it was painted.</p> <p>Next, show slide of Hubble telescope’s photograph of star “V838 Monocerotis” and ask students what they think it is.</p> <p>Ask students to reflect on what pictures might tell them. Is art imitating life (painted in 1889)? Or is life imitating art (photo taken in 2004)?</p>

	 <p>Van Gogh (1889) Hubble (2004)</p>
<p>Stated objective(s) (suggested):</p>	<p>Today, our lesson will help you begin a vocabulary bank related to space and agriculture, and to practice writing great sentences and paragraphs about space and agriculture.</p>
<p>Purpose (suggested):</p>	<p>The purpose of today’s lesson is to begin to get a better picture of how space and agriculture work together as we consider life on planets other than Earth.</p>
<p>Presentation: Objective 1</p> <ul style="list-style-type: none"> • Ask students to look at cover of GS2 and say what they see as it relates to space and/or agriculture. • Potential words may include: <ul style="list-style-type: none"> - Mars - planet - plants - vegetables - bell peppers - rocket - crops - farming - soil - Mars Rover - spaceship - rocks - smoke - flames - surface • After students have exhausted their list, teacher reads/reviews words with students. • Have students write vocabulary words on 3x5 cards to create a word set. 	<p>Teaching methods</p> <ul style="list-style-type: none"> • Write the words the students contribute on the board & draw lines extending from the picture to the corresponding word. 
<p>Check for understanding: Objective 1</p>	<ul style="list-style-type: none"> • Point to each word and ask student to find and hold up the corresponding word from their personal word bank. • Students respond to verbal prompt with choral response cue.
<p>Objective 2</p> <ul style="list-style-type: none"> • Instruct students to categorize words any way they desire. • Let students know they will be asked to justify the categories they created. 	<ul style="list-style-type: none"> • Students physically place cards into 2 or more categories.

<p>Check for understanding: Objective 2</p>	<ul style="list-style-type: none"> • If time permits, ask each student to share their categories and the reasons they selected those categories; OR, • Use <i>Think-Pair-Share</i> to talk about categories with a partner. Teacher calls on a few pairs to share interesting ways to categorize words.
<p>Objective 3</p> <ul style="list-style-type: none"> • Students construct sentences, in their proper context, using two or more terms in each sentence. • Students will select one to three of their best sentences to share aloud with the class. 	<ul style="list-style-type: none"> • Teacher models sentence using two of the words. • Students work alone or in pairs to construct sentences.
<p>Objective 4</p> <ul style="list-style-type: none"> • Teacher selects several student-generated sentences and models how a paragraph might look and sound. • Students will select three to five of their best sentences to write in a paragraph. 	<ul style="list-style-type: none"> • Teacher models paragraph writing on the board or overhead using four of the sentences. • Students work alone in class (time permitting) or complete the assignment at home.
<p>Closure (suggested):</p>	<p>Today, we explored the beginning of a new unit that tells a story of how space and agriculture will work together. We will continue this exploration as we move through this unit and discover how choices on Earth can effect what we do as we move closer to living on Mars!</p>
<p>Independent practice (suggested):</p>	<ul style="list-style-type: none"> • Students compose their paragraphs, either in class or at home.

V. Extension/Quest activities (optional, if time permits):

Students can brainstorm possible uses for their word card sets.
 (i.e. write science fiction stories, create news articles, compose a song, etc.)
 Students can conduct a web or print search for three facts related to each word in the word card set

VI. Assessment

Student completion of word sets, sentences, and paragraphs serve as assessment documentation for this lesson.

VII. Teacher Resources

Hubble telescope image information:

<http://www.abc.net.au/news/newsitems/s1059548.htm>

Vincent van Gogh information:

http://www.vangoghgallery.com/painting/over_07.htm

Space Agriculture in the Classroom information:

www.spaceag.org