

# DISCUSS Curriculum: Dialogic Inquiry of Socioscientific Issues with English Language Learners

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## Overview of DISCUSS Project

The DISCUSS (Dialogic Inquiry for Socioscientific and Conceptual Understanding in School Science) project aimed to develop and pilot a socioscientific issue (SSI)-based curriculum that will enhance critical thinking, understanding of science concepts, and academic language use of sixth grade English language learners (ELLs). SSIs



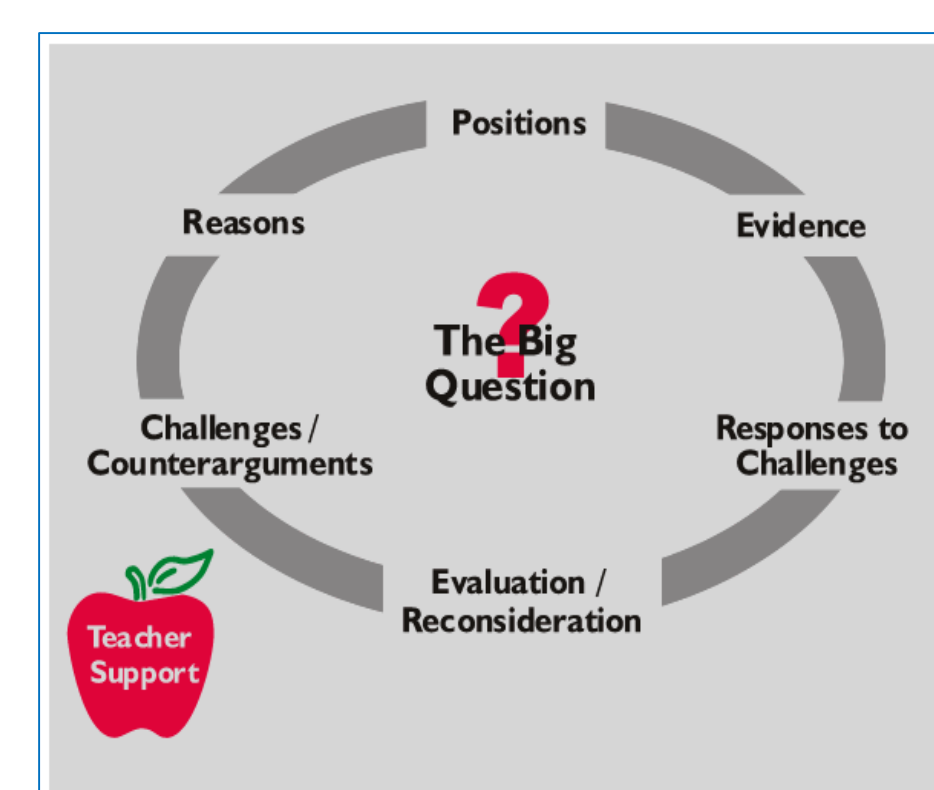
are controversial social issues with conceptual or procedural links to science. The SSI-based curriculum is developed by a team of UH researchers partnering with science teachers in Houston. We chose a geographically relevant issue pertaining to space exploration. Students engage in small-group and whole class dialogues, and argument writing activities to address a central question on whether the US government should increase or decrease funding for space exploration.

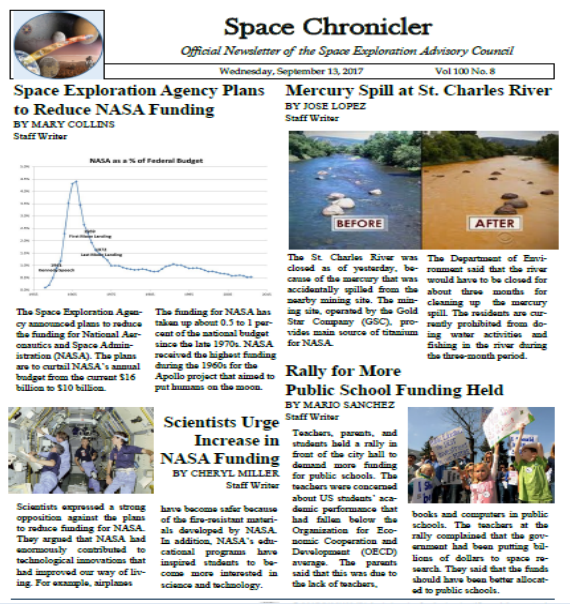

## Curriculum Design Principles

The Space Exploration Unit was developed in an iterative process based on teacher feedback. The Unit followed four design principles: a) rich and varied exposure to complex controversial content to promote argumentation; b) explicit links between concepts in texts to facilitate comprehension; c) multiple opportunities for hands-on inquiry, teacher-led whole class discussions and student-led small-group discussions to deepen conceptual understanding and promote academic language use; and d) aligned with state science, social studies and English language arts standards.

## Space Exploration Unit Layout

In the SSI curriculum, the students will engage in Collaborative Reasoning (CR), a dialogic approach to small group discussions. In CR, students read a text that raises a dilemma and then gather in small groups to address a Big Question. Students role-play as members of Space Advisory Council to make recommendation regarding the government's space exploration budget.



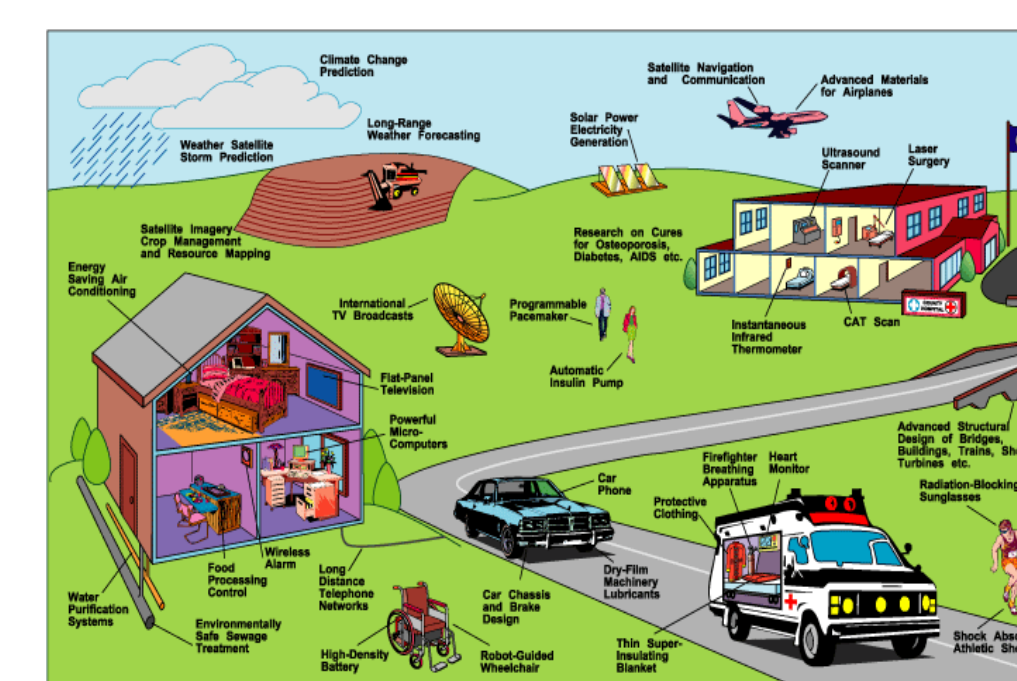
<p>Introducing the SSI ▶ Reading the Newsletter</p> 	<p>Setting up a scenario ▶ Reading the Introductory Packet</p> 	<p>Considering the Central Question: <i>Should the US government increase or decrease funding for space exploration?</i></p>	<p>Establishing background on the Space exploration issue</p>
<p>Reading the Argument Texts on four issue domains</p>	<p>Developing deep understanding of issues</p>	<p>Critically evaluating evidence</p>	<p>Formulating a position &amp; writing the recommendation/ decision letter</p>

Space Exploration Unit Curriculum Layout

## Highlight of Curriculum Materials

Students are introduced to the SSI through a newsletter and introductory packet. During the four-week curriculum period, the central question is broken down into four domains: technology, economy, environment, and public policy. Four argument texts were written to provide students with essential arguments that contrast opposing viewpoints for each domain of knowledge.

Space Exploration and Technology  
Argument Text



NASA Spinoff poster. NASA

Space Exploration and the Economy  
Argument Text

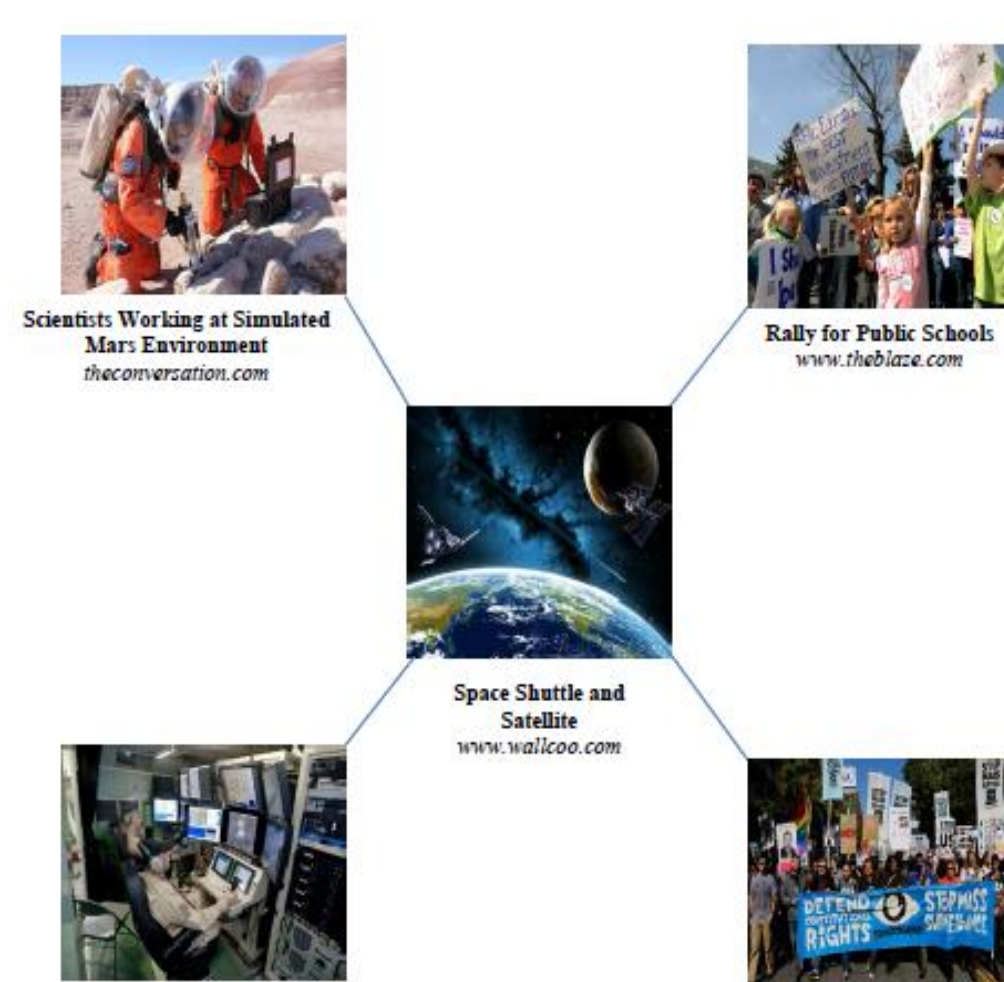


Space Exploration and the Environment  
Argument Text

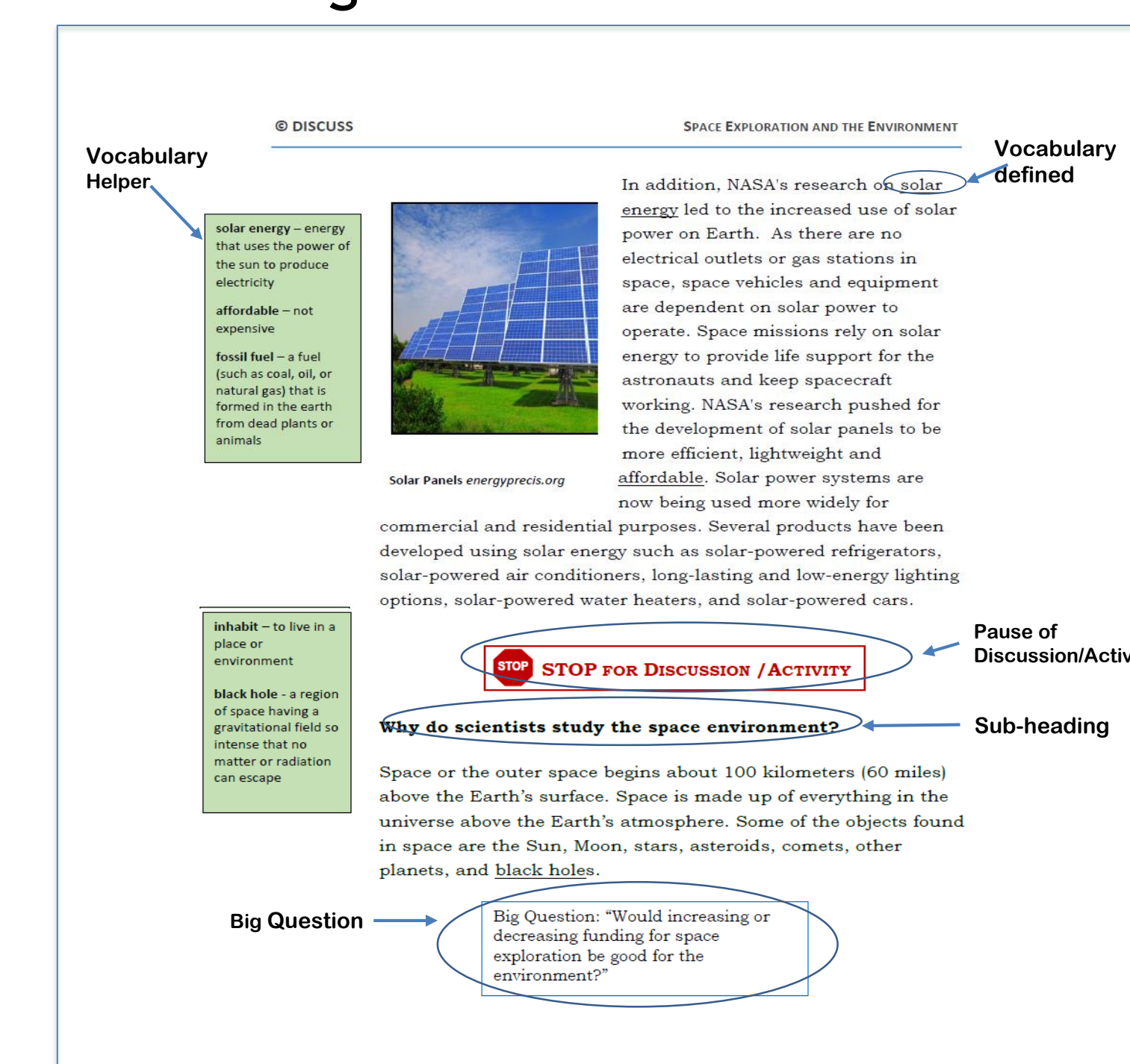


Satellite in Earth's orbit. NASA

Space Exploration and Public Policy  
Argument Text



## Argument Text Structure



## Next Steps

We have implemented the curriculum in three sixth grade science classrooms. Our next step is to analyze the classroom videos and intervention assessments to fully understand the feasibility of the curriculum and its impact on teacher and student learning. We hope to generate insights that can help teachers to create intellectually stimulating, personally engaging language-rich science classrooms to better serve the academic needs of students especially ELLs.

References available in a separate sheet.

## Acknowledgements

This project was funded by the University of Houston. We would like to thank the other project team members Dr. Sissy Wong, Dr. Jackie Relyea, Uchenna Emenaha and Jennifer Donze.