Step 1: Brainstorming for ExploraVision

During the first step you can introduce the competition and its rules. Show examples of winning projects from the website to get kids excited. Also during this time, as class exercises, have students name existing technologies they would like to explore. Try giving them advanced examples such as location-based Web applications or cancer-fighting drugs.

Objective
Introduce ExploraVision, get students excited.

Materials Needed
Access to the Web.

Procedure
Introduce ExploraVision and show examples of winning projects. You can find an example here: http://www.exploravision.org/winners/#grades10-12. Form groups and give students a deadline for choosing a topic. Throughout the step you can lead discussion sessions about technology that your students find interesting.

Evaluation
Are the students engaged? Are all groups formed by the end of the step? Are the groups registered by the end of the step?

Homework
Throughout the step, have students write comparative analyses of technologies in which they are interested and let them explain these technologies and their analyses to their classmates.

Step 2: Getting to Know the Subject

Objective
Enable students to research the history and current state of a certain technology; teach students about different research methods; instill good note taking and bibliographic skills.

Materials Needed
• Access to Web
• Access to libraries

Procedure
Lead sessions in which groups discuss interesting topics and explain what they already know about chosen technologies; lead Web research sessions; introduce students to different online search methods; introduce various information sources such as Lexis-Nexis, etc.

Evaluation
Does each group have a clear, chosen technology to research? Have the students gained an understanding of a technology's history? Have the students gained an understanding of a technology's present state? Have the students showed facility with the various information sources available to them?

Homework
Based on his or her Web, magazine and library research, have each student write a timeline and short summary of a technology's history, along with comparative analyses of their chosen technologies and similar technologies. You can have them do this throughout the step.

Step 3: Understanding Technological Change

Objective
To get students thinking about what it takes to create breakthrough technologies; to encourage students to think critically; to foster group dynamics that will help teams succeed; to help students work through what it would take for their chosen technology to evolve.

Materials Needed
Computer/Web access.

Procedure
Ask students for examples of different technologies. Have them present their examples in front of the class. After each presentation, start a discussion about how that technology could have evolved.

Have the students work in groups to collect ideas on how their chosen technologies could evolve in 20 years, then ask them to present their ideas to the class.

Evaluation
Are the students grasping what "technology" means? How well are they presenting their understandings of these technologies? How in depth are their collective ideas on technological evolution? Are all team members contributing equally? Are they communicating their ideas clearly to the class?

Homework
Have students write and refine drafts of their teams' "Future Technology and Breakthroughs" entry sections. Encourage them to use the peer-review process.

Step 4: Testing the Idea

Objective
Work on presentation skills; test ideas; encourage critical thinking; complete draft of entries' "Consequences" section.

Materials Needed
Computer/Web access.

Procedure
Each group should present its future technology to the class along with analyses that compare their technologies to similar ones. Encourage other students to ask questions of the presenters. Questions from other students should allow the groups to consider the pros and cons (consequences) of their visions of future technology. Students could even fill out a chart of the pros and cons of the presented future technologies that cite sources; the charts would then be given to the corresponding groups for feedback.

Evaluation
Did each group present? How evolved are the students' different versions of future technology? Have the students shown that they've thought about what it takes for a technology to evolve and break through over 20 years? Are non-presenting students engaged in conversation? What is the quality of the students' feedback?

Homework
Throughout the step, work with students on their drafts of the entry's "Consequences" section. Encourage them to use the peer-review process.

Step 5: Presenting the Project

Objective
Teach students follow-through; help students understand how to present ideas clearly; use the Web and prepare ExploraVision entries.

Materials Needed
Computer with any graphics or photo manipulation program, access to ExploraVision entry materials.

Procedure
Work with students to refine images of their future technologies. Allow them to work with their groups to draw out plans for their simulated Web page graphics. You or coaches can work with them to refine these images. During this step you should give students deadlines for finishing and incorporating feedback into their written entry sections.

Evaluation
Do images of future technologies represent collaborative work? How have these images evolved throughout the step? How have the students incorporated feedback into their written entry sections? Are the sections complete? Have you worked together to complete and submit the entries?

Homework
Complete Web page graphics; finalize all sections of the description (present technology, history, future technology, breakthroughs, design process, consequences.) Work with students to write abstract and bibliography, complete entry form and submit entry.

Sample Timelines

Incorporate ExploraVision into your classroom, and get your students excited about science through hands-on learning! Here are a few sample timelines that you can use:

		3-WEEK PROGRAM	2-MONTH PROGRAM	4-MONTH PROGRAM
Step 1: Introduction	Introduce the competition and review the rules. Give students time to brainstorm ideas. Officially register your team online or begin filling out the entry form.	Days 1-4	Week 1	Weeks 1-2
Step 2: Research Stage	Give the team some time to research their technology. If the team prefers to go in a different direction than their original idea, they have time to start with a new one. Optionally, find a mentor that fits the team and their idea.	Days 5-10	Weeks 2-4	Weeks 3-7
Step 3: First Draft	Require a draft of the current technology, history, and updates on their future technology.	Day 11	Week 5	Week 8
Step 4: Breakthroughs & Consequences Stage	Have the team analyze the consequences of their future technology and the breakthroughs necessary to achieve it. Point the team in the direction of some emerging technologies that may be useful.	Days 11-15	Weeks 5-6	Weeks 8-11
Step 5: Second Draft	Require a draft of the consequences, design process, and breakthroughs.	Day 16	Week 7	Week 12
Step 6: Complete Draft	Have the team work on their abstract, bibliography and web page graphics. The team should submit a complete draft of their project.	Days 17-19	Week 7	Weeks 12-14
Step 7: Revisions and Submission	Have the team make last minute revisions, complete the entry form with signatures, and mail complete entry to NSTA or submit online.	Days 20-21	Week 8	Weeks 15-16