TOSHIBA | NSTA

ExploraVision

ALL STUDENTS RECEIVE ENTRY PRIZES

The Toshiba/NSTA ExploraVision science competition for K–12 students engages the next generation in real world problem solving with a strong emphasis on STEM. ExploraVision challenges students to envision and communicate new technology 20 years in the future through collaborative brainstorming and research of current science and technology. Beyond engaging your students in problem solving, team-based learning, critical thinking, and communication skills, ExploraVision aligns with the Next Generation Science Standards.

Check out the special teacher prize at:
www.exploravision.org/brochure

Up to $240,000 (at maturity value) in savings bonds and special gifts for winning students.

THE SCIENCE OF A-ha!

TOSHIBA | NSTA

Through Toshiba's shared mission partnership with NSTA, the Toshiba/NSTA ExploraVision competition makes a vital contribution to the educational community.

OVERVIEW

ExploraVision is a science competition for K–12 students of all interest, skill, and ability levels. The competition encourages students to combine their imaginations with the tools of science to create and explore a vision of a future technology.

Students work in groups of two, three or four, and are guided by a team coach and an optional mentor. Each team selects a technology, or an aspect of a technology, which is present in the home, school, or community, or any other technology relevant to their lives. They will explore what the technology does, how it works, and how, when, and why it was invented. The students must then project into the future what that technology could be like 20 years in the future and determine what scientific breakthroughs need to occur to make it a reality.

TEAM ADVISORS

Teachers/Coaches:

- are a required member of each team
- must teach at a school attended by at least one of the team members
- cannot be a parent/guardian of a team member
- may enter an unlimited number of teams
- should guide the students but not perform work on the project

Teacher/Coaches are requsted to register online at *www.exploravision.org/direct* to receive tips for participating and optional instructions for submitting projects online

Mentors:

- are optional
- can be an individual that represents an organization or business or be a parent/guardian of a team member
- should serve as a resource person for the team but not perform work on the project

Key Dates

February 10	**Projects Due**	
March 10	**Regional Winners Announced**	
April 23	**National Winners Announced**	
June 3-5	**ExploraVision Awards Weekend**	

PROJECT SUBMISSION RULES

Entrants:

- must be full-time K–12 students
- must be currently enrolled in and attending a public, private, or home school in the United States or Canada
- must not be older than 21
- must submit only one project per year

Projects:

- must be received at NSTA or submitted online by 11:59 pm EST, on February 10, 2020.
- must consist of an ExploraVision Entry Form, an Abstract, a Project Description, Bibliography, and five Sample Web Pages

For the complete list of rules, please visit
www.exploravision.org

"ExploraVision endorses STEM literacy by improving skills in the areas of critical thinking, deductive and inductive reasoning, and problem solving."

Teacher, Grades 4–6

GREAT NEWS!

ExploraVision offers students the scientific and engineering learning experiences central to the *Next Generation Science Standards!*

PRIZES

For The Students

- Up to $240,000* in savings bonds: $10,000* savings bond for each first-place team member and $5,000* savings bond for each second-place team member

- An expense-paid trip to Washington, DC in June for ExploraVision Awards Weekend for each national winning student and their parents/guardians

- A technology/science-related gift for each regional winning student

- A unique prize for all students on 500 Honorable Mention winning teams

- A certificate of participation and an entry gift for every student who submits a complete project

For The Schools

- A technology/science-related gift for each of the schools of the regional winning teams

- An awards ceremony for each regional winning team at their school where they will receive a winner's banner, plaque, and other gifts

For Teachers/Coaches and Mentors

- An expense-paid trip to Washington, DC in June for ExploraVision Awards Weekend for the teacher/coach and mentor of each national winning team

- A one-year NSTA membership for teachers/coaches of the national winning teams

- A certificate of participation and an entry gift for each coach and mentor of every team that submits a completed project

- A technology/science-related gift for the teacher/coach and mentor of each regional winning team

- An expenses-paid trip to an NSTA conference for ExploraVision Ambassadors

- Check out ExploraVision's special teacher prize at *www.exploravision.org/direct*

* Savings bonds maturity value

PROJECT CATEGORIES

Primary Level	**(Grades K–3)**
Upper Elementary Level	**(Grades 4–6)**
Middle School Level	**(Grades 7–9)**
High School Level	**(Grades 10–12)**

Each grade-level project category is judged separately, based on the abilities of students in those grades. Students in a lower grade may be part of a team competing in the next higher grade-level project category.

ONLINE PROJECT SUBMISSION

Four easy steps:

1) Teacher/Coach Registration *(www.exploravision.org)*

2) Register Your Teams

3) Teams Complete Projects Offline

4) Upload and Submit Projects

- You are requested to submit your teams' project online.

- A teacher may register as many teams as he or she wishes.

- Each team is automatically assigned a project number upon registration.

- Your Team's assigned project number must appear on each page of your project file.

If you must use mail, please send completed projects to:
Toshiba/NSTA ExploraVision
National Science Teachers Association
1840 Wilson Blvd
Arlington, VA 22201-3092

"ExploraVision creates a mindset for approaching problems that focuses on what needs to be done and deeper insight into the challenges and consequences. I could see the excitement on the boys faces each week when we met to talk about their project and eagerness as they dug into each new phase."

Mentor

JUDGING

The judging committees are made up of leading science educators and science and technology experts. Judging is divided into two phases: regional and national judging. All eligible projects will be evaluated in the regional judging phase. 24 regional winning teams will move on to national judging.

The judging criteria for assigning points are based on creativity, scientific accuracy, communication, and feasibility of the project's vision. Judges award higher scores to entries that are unique and different from those that have won previously.

CHECK LIST FOR PROJECT SUBMISSIONS

*MANY CREATIVE AND EXCELLENT PROJECTS ARE DISQUALIFIED EACH YEAR DUE TO TEAMS NOT FOLLOWING THE RULES.* Please ensure that teams "check off" and adhere to each item below before submitting to help ensure a qualified project. We encourage you to ask someone who has not been involved with the project to review for compliance.

- ❏ Project registration on www.exploravision.org

- ❏ Team consists of two, three or four student members and a coach. The mentor is optional.

- ❏ Each project includes an Abstract that is **clearly labeled** and precedes the Description on a **separate page** (not counted as part of the Description).

- ❏ Abstract is 150 words or less.

- ❏ Project title is at the top of the first page of the Description.

- ❏ The following sections in the Description are clearly labeled and presented in *exactly* the following order: Present Technology, History, Future Technology, Breakthroughs, Design Process and Consequences. The project will be disqualified if sections are missing or out of order.

- ❏ Description is **no more than 11 pages**.

- ❏ Project includes a Bibliography (not counted as part of the Description).

- ❏ **Exactly Five** Sample Web Pages are submitted.

- ❏ Student, coach, mentor and school **names do not appear** in the Abstract, Description, Bibliography or on the Sample Web Pages.

- ❏ Project is submitted in English.

- ❏ Description is typed and double spaced, on standard Word style document.

- ❏ The font is a standard 12-point size or larger, but no larger than 18-point size.

- ❏ Completed project submissions, including all Sample Web Pages, must be received online at NSTA by 11:59 pm EST, February 10, 2020.

Join the ExploraVision community at

f *www.facebook.com/ToshibaInnovation*

🐦 : *www.twitter.com/ToshibaInnovate*
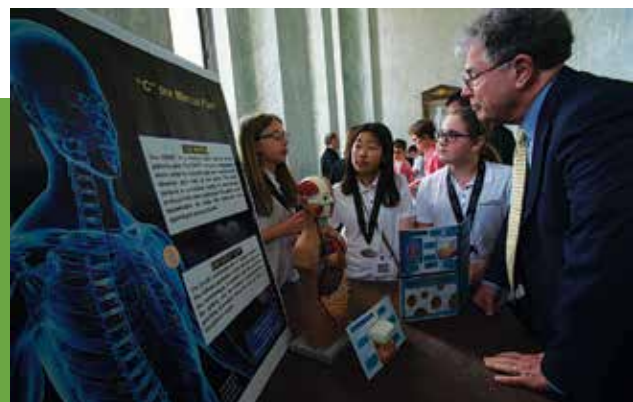
REQUIRED PROJECT COMPONENTS

I. Abstract

An abstract of **no more than** 150 words (typed, double-spaced and clearly labeled) that summarizes the proposed future technology and other relevant information must precede other project components. The abstract should be on a separate page and does not count as part of the description.

II. Description

Each team must prepare a written description of its project that does **not exceed 11 pages** and may be a combination of text and artwork. It must include the following sections with headings clearly labeled and be in the following order:

A) Present Technology* – 10 points

Give an overview of the present form of the technology, including scientific principles involved in its functioning. Define a problem or limitation of this present technology that you will address in your ExploraVision project.

B) History – 10 points

Research and describe the history of the technology from its inception.

C) Future Technology – 20 points

Describe the team's vision for what this technology will be like 20 years in the future, including scientific principles involved in developing the technology.

D) Breakthroughs* – 15 points

Research and describe breakthroughs that are necessary to make the future technology design a reality. Describe why this future technology doesn't exist today. Choose one of your required breakthroughs and describe an investigation that would have to be planned and carried out to test your ExploraVision project. If possible, include the kind of data or measurements that would be collected in the investigation.

E) Design Process* – 10 points

Describe three alternative ideas of features the team considered for their project. The ideas and features should be directly related to the project, not a list related to other projects submitted in previous years or by other participants. Describe why the team rejected each feature and idea in favor of the ones in the submitted technology. Describe how your future technology feature is better than the rejected design feature.

F) Consequences* – 10 points

Recognizing that all technologies have positive and negative consequences, describe the potential positive and negative consequences of the new technology on society.

* Section central to the
Next Generation Science Standards.

III. Bibliography – 5 points

All sources used in researching the chosen technology should be referenced in the Bibliography. Sources must be clearly labeled and include title, author, publisher, and copyright date. Footnotes are encouraged, but are not required. The Bibliography is not counted as part of the 11-page limit for the Description.

IV. Sample Web Pages* – 20 points

Team members **must prepare five (5) sample web pages** that communicate and promote their future technology vision. Web pages may be hand-drawn or computer-generated and may include text, pictures, photographs and diagrams. They should relate to material presented in the written description and illustrate the attributes of the chosen technology. One web page should be devoted to a model or visual representation of the technology that could be used to create a prototype for display. The model should help others visualize the design and communicate design features. Include a description of limitations of the model (i.e. how is the model different from the actual ExploraVision project.)

ExploraVision Project Rating System–
100 point scale

Present Technology	10 points
History	10 points
Future Technology	20 points
Breakthroughs	15 points
Design Process	10 points
Consequences	10 points
Bibliography	5 points
Sample Web Pages	20 points

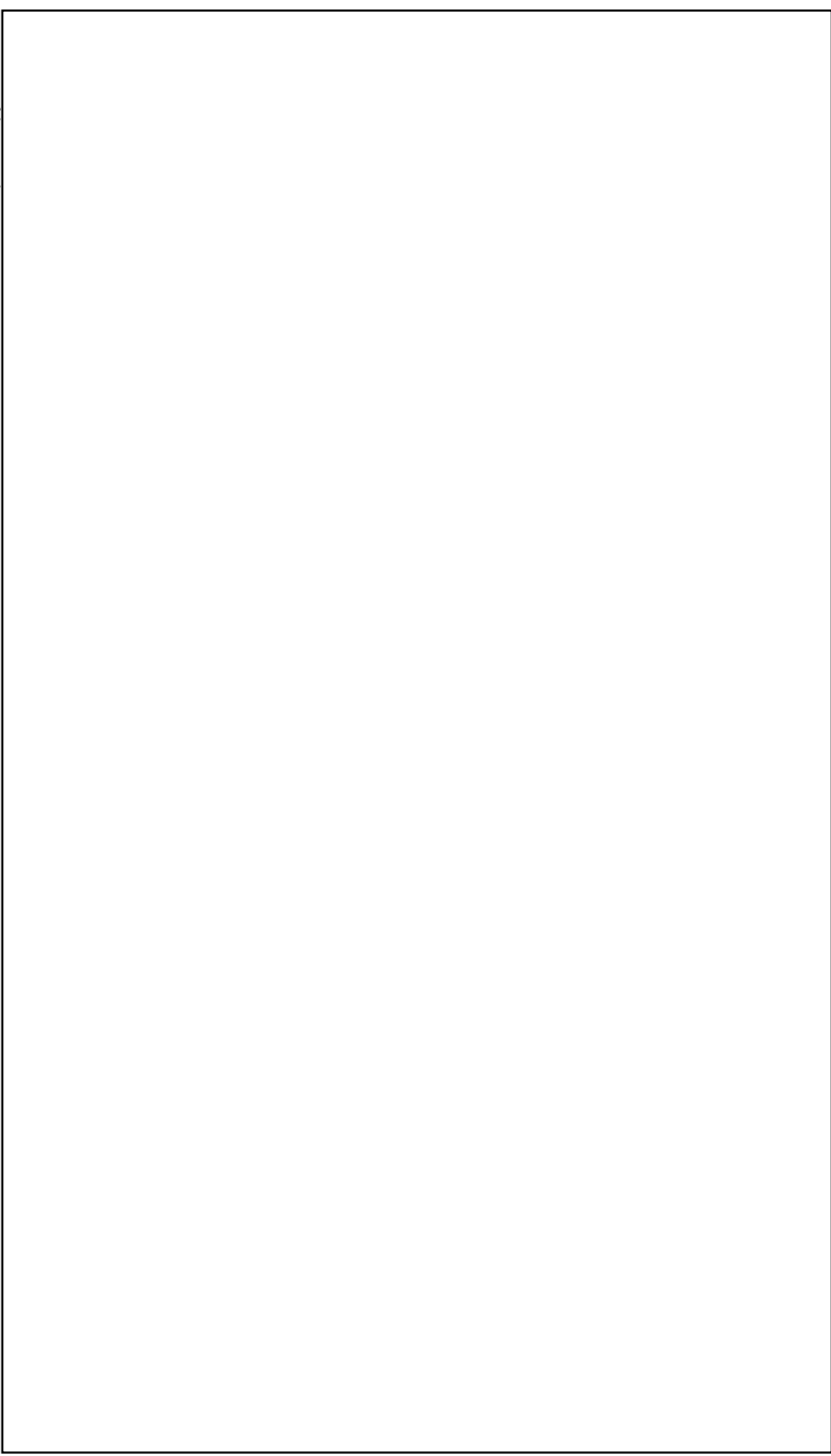# SAMPLE PROJECT DEVELOPMENT TIMELINE

How to develop your team project

		3-WEEK PROJECT	2-MONTH PROJECT	4-MONTH PROJECT
Step 1: Brainstorming	Learn about the competition's rules. Show examples of past projects and have students name existing technologies they would like to explore. Form groups and give students a deadline to choose a topic.	Days 1–4	Week 1	Week 1
Step 2: Getting to Know the Subject	Teach students about different research methods and about "sources" or a bibliography. Lead group discussion on interesting topics and what is already known about the technologies. Share various sources that can be used such as magazines, the Web, and books. Based on research done, each student should write a timeline and a summary of one or more topic's history. Find a mentor that fits the team and their idea.	Days 5–10	Weeks 2–3	Weeks 2–4
Step 3: Understanding Technological Change	Have students present their examples in front of the class. Lead a discussion about how that technology could have evolved. Working in groups, students collect ideas about how their technology could evolve 20 years in the future, analyzing the consequences of their future technology and the breakthroughs necessary to achieve it. Present those ideas to the class. For homework have students refine drafts of their teams' "Future Technology and Breakthroughs" project section.	Days 11–14	Weeks 4–5	Weeks 5–8
Step 4: Testing the Idea	Each group should present its future technology to the class. Encourage students to consider the pros and cons of their visions. For homework, work with students on the "Consequences" section.	Days 15–16	Week 6	Weeks 9–12
Step 5: Presenting the Project	Students prepare the project entries and draw out plans for the sample web pages (5) including images of future technologies. For homework, complete all sections of the description and begin to write the abstract and bibliography.	Days 17–20	Week 7	Weeks 13–15
Step 6: Final Look	Make last minute revisions. Double check project registration and submit a complete the project on-line.	Day 21	Week 8	Week 16

For sample projects and more information about how you can incorporate ExploraVision into the curriculum, please visit *www.exploravision.org*

TOSHIBA/NSTA EXPLORAVISION SAMPLE WEB PAGE FORM

Please photocopy this sheet

In the space below, please describe any special effects that might be applied to your web page.

Sample Web Page #_____ of **5** (must include **5** forms)