S.P.A.R.K. Research Challenge Handbook: Getting Started

S.P.A.R.K. Research Department

Introduction:

The SPARK Research Challenge is built on a simple but powerful belief: curiosity is the foundation of all meaningful learning. Research is not reserved for laboratories, professionals, or advanced degrees, it begins when a student notices the world around them and asks thoughtful questions about how and why things happen.

This challenge was designed by the SPARK HQ departments to give students a structured, professional, and intellectually engaging introduction to research. The goal is not to measure how much students already know, but to evaluate how well they can think, question, analyze, and propose ideas grounded in evidence and logic. SPARK values originality, clarity, and real-world relevance over memorization or technical complexity.

This handbook serves as an official guide for participants. It outlines the mission of the challenge, explains how to begin a research proposal, defines required components, and clarifies expectations regarding academic integrity and ethical use of technology. Students are encouraged to read this handbook carefully and refer back to it throughout the research process.

Understanding the mission:

The mission of the SPARK Research Challenge is to introduce students to the mindset and structure of research in a way that is accessible, ethical, and intellectually rigorous. Participants are not required to physically conduct experiments, recognizing that experimental research is often limited by age, resources, safety, or access to equipment.

Instead, SPARK emphasizes the design of research. Students are expected to demonstrate that they understand how research works by identifying a meaningful question, engaging with existing knowledge, forming logical predictions, and proposing realistic methods for investigation. Research, in this challenge, is about thinking deeply, not performing complex procedures.

At its core, SPARK aims to develop transferable skills: critical thinking, digital literacy, ethical reasoning, and the ability to communicate ideas clearly and persuasively. These skills are essential not only in academics, but in real-world problem solving and innovation.

How to get started:

Step 1: Start With Curiosity

Every strong research project begins with a question. Think about everyday experiences, observations, or problems that spark your curiosity.

These questions can be simple and personal, such as:

- Why does baking soda cause dough to rise?
- Why do some animals display certain behaviors while others do not?
- How does screen time affect concentration?

Good research questions often begin with “why” or “how.” These questions invite investigation rather than simple yes-or-no answers.

Step 2: Refine Your Question

Initial questions are often broad or informal. The next step is to refine the idea into a focused research question that can guide investigation. A commonly used academic structure is:

- How does ___ affect ___?

For example:

- How does temperature affect plant growth?
- How does background music affect study concentration?

A strong research question should be specific, researchable, and relevant to real-world contexts.

Step 3: Learn What’s Already Known

Before forming conclusions or predictions, students must explore what is already known about their topic. Background research involves consulting credible sources such as educational websites, academic articles, books, documentaries, or scientific summaries. This step demonstrates intellectual responsibility and ensures that the proposal is grounded in existing knowledge rather than assumptions.

Quality background research strengthens the proposal, sharpens the research question, and helps students justify their hypothesis and proposed method.

Formatting:

SPARK provides a recommended structure to guide participants toward a professional research proposal. Students who are familiar with other academically accepted formats may use them; however, following the SPARK format is strongly recommended for clarity and consistency.

A complete research proposal should include the following sections:

1. **Abstract**
   A brief summary of the entire research proposal, outlining the research question, purpose, and overall approach.
2. **Research Question**
   A clear, focused statement that defines exactly what the research aims to investigate.
3. **Background**
   An overview of existing information, theories, or research related to the topic that provides context and demonstrates understanding.
4. **Hypothesis**
   A reasoned prediction of the expected outcome based on background research and logical reasoning.
5. **Proposed Method**
   A detailed explanation of how the research could be conducted, including variables, procedures, and materials, even if the experiment is theoretical.
6. **Data Collection & Analysis**
   A description of what type of data would be collected and how it would be analyzed to answer the research question.
7. **Challenges or Limitations**
   A discussion of possible obstacles, constraints, or factors that may affect the accuracy or feasibility of the research.
8. **References (MLA Format)**
   A properly formatted list of all sources used, demonstrating academic honesty and credibility.

Competition Rules & Academic Integrity:

All participants are expected to uphold high standards of **honesty, responsibility, and academic integrity** throughout the S.P.A.R.K. Research Challenge.

These rules exist to ensure fairness, learning, and meaningful participation **for all students**. Failure to comply may result in disqualification or removal from the competition.

1. **Proper Citation of Sources**
   All non-oridinal ideas used in the proposal must be clearly cited. This includes information obtained from books, articles, websites, videos, databases, or AI-assisted tools. Proper citation demonstrates respect for intellectual property and allows reviewers to verify the accuracy of information.

2. **Authenticity of Experience and Work**
   Any personal experiences, observations, experiments, or claims described in the proposal must be truthful and authentic. Submissions should reflect the participant's own understanding and effort. Fabrication, exaggeration, or misrepresentation of experiences is strictly prohibited.

3. **Deadline Compliance**
   All submissions must be completed and submitted by the official deadline. Deadlines are final, and no extensions will be granted under any circumstances. This policy ensures fairness and equal opportunity for all participants.

4. **Originality**
   Submissions must be original work created specifically for the S.P.A.R.K. Research Challenge. Plagiarism, including copying from other students, online sources, or previously submitted work, is not permitted.

AI Usage Policy:

SPARK recognizes that artificial intelligence is an important and rapidly evolving tool in modern education and research. As such, the use of **AI tools is allowed and encouraged when used responsibly and ethically.**

- Participants **may use AI to assist with brainstorming ideas, improving clarity, organizing thoughts, or understanding complex concepts.**
- AI should be treated as a **support tool**, not a replacement for the participant's own thinking, reasoning, and understanding.
- Any factual claims, statistics, or citations suggested by AI must be verified through credible and reliable references. Invalid, fabricated, or unverifiable sources provided by AI tools must not be used.
- Students are expected to fully understand and be able to explain the content of their proposal. Submissions that demonstrate overreliance on AI without genuine comprehension may be penalized.
- The core ideas, research question, and reasoning must reflect the student's own intellectual contribution.

SPARK's goal is not to restrict technology, but to ensure that it is used in a way that enhances learning, critical thinking, and academic honesty.

Final Notes:

The SPARK Research Challenge is your chance to explore your curiosity, think creatively, and try something new. There are no "silly" questions, only unexplored ones. **Be curious, be honest, and most importantly, have fun turning your ideas into research.**
This is where great questions begin. Let's SPARK them.