

# PEER-SUPPORTED COLLABORATION PROJECT



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## **Project Introduction**

Over the next 4 weeks, students will engage in a research project that will require them to work as a team to make decisions, assign tasks, participate in group discussions, and produce research materials all within the context of an online learning environment. This project is designed to showcase the importance of communication in the context of a group environment.

## **Learning Goals and Objectives**

1. Students will work collaboratively and support each other to complete a shared objective

By having students work collaboratively, this project reinforces key concepts of teamwork and collaboration such as decision making and interpersonal communication that will be beneficial to them in their current capacity as high school students as well as future performance environments they are likely to find themselves in as they pursue their future academic or professional interests.

2. Students will gain experience using technology in an academic learning environment

To increase student's digital literacy, they will utilize online resources to create a research plan which they will use to conduct research, document their findings, and present a report or presentation summarizing their work on a scientific topic of their choosing. Creating opportunities to expose students to technology-based research and communication tools within the context of the academic space is the core concept of the project's design.

## **Learner Characteristics**

Before the project schedule begins, each student will take a skills inventory regarding their knowledge and previous experiences with group work, communication with peers, comfort with technology, and any previous research experience they have had in their academic career. Based on the results of the surveys, the instructor will assign students in groups so that each group is composed of students with differing skill levels in each survey category to create a group environment where at least one student can provide support to their group in the areas where they are most confident.

Arranging groups according to relevant skills will encourage students to provide scaffolding for their group and promote positive peer interactions by giving each student an opportunity to gain experience with leadership and communication by explaining their knowledge of a subject to the group and also receive support from someone who is a peer rather than an authority figure. In order for the group to function effectively, each student will need to develop and use many of the social skills that will be expected of them as adults such as participating in group discussion, active listening, and resolve any conflicts in a constructive way that allows the group to move forward towards their objective.

## **Timeline**

This project will take place during eight 90 minute class periods over 4 weeks (2 classes per week) and will follow a weekly schedule as follows:

### **Pre Project** (1-2 weeks before start of project)

- Students will complete skills inventory to facilitate group selection

### **Week 1**

- Instructor will introduce the group project and explain assessment guidelines and expectations.
- Students will be assigned into groups and begin brainstorming potential project ideas
- Students will submit a project proposal to the instructor for approval

### **Week 2**

- Groups will collaborate and post a short explanation of their proposal to the schools online discussion forum
- Students will respond to at least 2 different group proposals and provide feedback using the guidelines outlined in the project resource packet posted by the instructor
- Instructor will provide feedback to groups and give a short demonstration lesson on how to carry out a general research plan

### **Week 3**

- Groups will begin researching their topic and collecting information
- Groups will draft a progress report detailing their findings
- Instructor will review each group's progress and provide support where needed

### **Week 4**

- Groups will conclude their research create a presentation on their research
- Groups will present their findings to their class
- Each student will complete a group evaluation survey and an individual skills inventory upon completing of the research project

### **Collaboration Issues to be Considered**

1. **Group Communication:** As the participants in the project will be high school students, it is anticipated that there will be communication difficulties relating to several contributing factors that the students will bring to the group dynamic. Factors including friendships or animosity, level of motivation, experience in working with peers, and social skills will all be considered as possible variables that will affect the groups ability to resolve conflicts and make decisions along with the levels of trust and rapport within the group. The most anticipated and common communication issue with group projects is the social loafing and free rider phenomenon where students will contribute less effort to the group because they believe their efforts are not impactful.
2. **Technical Issues and Computer-Mediated Communication:** It is expected that there may be some technological issues that will hinder a group's workflow, these may be relating to the resources that are provided to the students in the form of access of wifi, computers, and access to support staff or on the part of the students in terms of their confidence in using various cloud-based tools (Google Suite, Microsoft Office, School Learning Management Systems).
3. **Learning Styles:** Each student will have their own way of learning and working that they will need to adapt to a group setting which may cause conflicts in the group as some students will be reluctant to change or require support in taking on responsibilities that they feel are not tailored to their preferred learning style.
4. **Maintaining focus:** The online nature of the assignment may cause some students to become distracted and begin browsing the internet or checking their social media accounts which will slow down progress and cause other students to take on more work as a result of freeriders.

### **Proposed Solutions to Manage Collaboration Issues**

1. Guidelines regarding group conduct will be provided to each group as part of the project information document that clearly describes the conduct expectations for students. Students will be able to report any issues with group members either directly to the instructor or via the schools messaging system, the instructor will closely monitor each group and mediate any conflicts or inappropriate behavior as needed. To address the issue of social loafing or lack of effort, each group member will complete an anonymous peer evaluation survey which will be integrated with their group's overall score to formulate their individual final grade.

2. To avoid any potential loss of work, students will be using exclusively cloud-based software for all research, correspondence, and file sharing which rely on operating by saving work in real time. The students will also have access to the district's IT support staff and ticket portal which will support the students and instructor in troubleshooting any technical issues they may experience. The students will engage in an online discussion forum to introduce their group's topic, provide progress reports, and give feedback to other groups. The creation of an online environment where positive student interactions can take place in a key element of student engagement and the creation of new knowledge and skills.

3. In the research portion of the project information page, students will presented with examples various forms of research which they can use to complete their assignment:

- Visual learners can create concept maps to create connections between the group's research and their thought process in order to organize their work or create visual aids.
- Auditory learners will be able to listen to recordings of past lectures or podcasts on their research topic and communicate with their peers via the school's cloud-based video chatting software.
- Kinesthetic learners will be encouraged to seek out any hands-on ways of contributing to the group's efforts by searching for any interactive demonstrations or activities that will help the group in displaying their research to their peers.
- In order to monitor student's progress, they will submit a progress report to the online discussion forum in which they will describe what data they have collected and in what format they are planning to present their findings in the final presentation. They will also explain any problems or challenges that have arisen during their research. The idea behind having groups develop multiple strategies for problem-solving in terms of how they will display their information is for students to transfer the strategies they have learned in the group project into their individual work after the group project has been completed.

4. One of the largest challenges with any online learning in a K-12 environment is maintaining group coordination to support the collaborative learning aspect of online learning. As part of the school districts online security protocols, many of the popular social media sites are blocked and all school-issued computers are equipped with software to monitor student activity. In an effort to encourage group coordination, the instructor can also reward students for staying focused and meeting daily progress goals by giving them a small reward such as extra free time to browse the internet at the end of class or being able to bring a snack to class.

## **Instructor's Guide**

This guide is meant to provide the instructor with a more detailed overview of the project's timeline and objectives as well as how they can incorporate collaborative learning principles into their class activities.

### **Pre-Project**

Objective: Students will complete a skills inventory to facilitate group selection

Instructor tips: A skills inventory will give the instructor a good idea of the pre-existing skills, attitudes, and perspectives that their learners will be bringing into the project. The inventory will be a useful tool in the consideration of student skill levels in a particular area and allow students to provide support to their group members in the areas they are most confident while also learning from their group members in other areas of research, project management, and communication.

### **Week 1**

#### **Class #1 (90 minutes)**

Objective #1: Instructor will introduce the group project and explain assessment guidelines and class expectations.

Instructor tips:

- A clear explanation of the project will help eliminate confusion and provide students with an overall structure of their responsibilities and deliverables.
- Students will have a better understanding of the project's purpose and outcomes which will help them better organize and complete their work.

Objective #2: Instructor will give a short demonstration on how to carry out a research plan

Instructor tips:

- Providing students with a demonstration that reflects the guidelines and expectations outlined in the project introduction will reinforce what their roles and responsibilities will be as they start to work on their project.
- The instructor should create a short presentation on how they would like their students to proceed with the project. This should include topics such as deciding on a research topic, outline data collection and visualization strategies, summarizing findings, and drawing conclusions.

Objective #3: Students will be assigned into groups and begin brainstorming potential project ideas to propose.

Instructor tips:

- Brainstorming allows students to communicate their personal interests with the group which will aid the group by giving them a larger amount of ideas that they can expand on.
- Group discussion helps students build on each other's thoughts and further define their own thoughts as they decide on a research topic. Discussion also helps groups to identify their strengths and weaknesses in terms of knowledge and abilities in relation to the creation of research and presentation materials.
- If a group shows signs of communication or personality issues, mediate the issue if possible but students may need to be reassigned or excused from the project depending on their situation.

## **Class #2 (90 minutes)**

Objective #1: Students will write and submit a project proposal for instructor approval.

Instructor tips:

- Check in with each group to see how they are progressing with their proposal, some groups may require more support than others in terms of their ability to use technology and structure their proposal.
- A proposal requires group members to use communication skills such as decision-making, compromise, and conflict resolution in order to decide a research topic.
- The proposal also serves as an outline for students to follow which will help them avoid going off task and producing work that is not relevant to the group's efforts.
- In the event the instructor does not approve the proposal, students can reference the instructor comments to help guide the decision-making process.

## **Week 2**

## **Class #3 (90 minutes)**

Objective #1: Groups will collaborate and post a short explanation of their proposal to the schools online discussion forum .

Instructor tips:

- Participating in an online discussion forum helps students gain experience with using asynchronous communication. An online discussion thread can create a central hub of information that students can access at as they conduct their research and allows for the sharing of thoughts and suggestions throughout the timeline of the project. Contributing to a discussion thread helps students develop written communication skills at various levels of formality as they communicate with each other via their proposal comments and direct messages to each other.
- Encourage students to work with each other and share how they found their information.
- Monitor groups closely as some students may not have experience working in groups or be unfamiliar with their group members.

Objective #2: Students will respond to at least 2 different group proposals and provide feedback using the guidelines outlined in the project resource packet posted by the instructor.

Instructor tips:

- Providing structured feedback allows groups to receive comments from their peers that are useful to their project and can help groups identify areas of improvement. Giving and receiving feedback also builds students confidence in their work and supports a positive learning environment.
- Create a template demonstrating what types of feedback students should be including in their responses.

## **Class #4 (90 minutes)**

Objective #1: Groups will begin researching their topic and collection information

Instructor tips:

- Closely monitor groups as they begin their work, make sure to refer them to the research plan to ensure they are working within the areas defined in their research plan.
- It may be helpful to show students how to create folders to organize the information they have collected for later use when they summarize their findings.



### **Week 3**

#### **Class #5: (90 minutes)**

Objective #1: Groups will continue their research and draft a progress report detailing their thoughts and findings on the class online discussion forum and respond to at least 2 other groups to provide feedback

Instructor tips:

- Progress reports help groups to define what progress they have made and identify what work still needs to be completed. The instructor should monitor and provide feedback in the discussion forum.
- Interacting with the discussion forum also supports and enriches communication between students and can provide feedback from outside the group to further fuel group discussion and research. Encourage interaction and provide positive reinforcement wherever possible.

#### **Class #6: (90 minutes)**

Objective #1: Groups will meet with instructors during class time to discuss their progress report and any issues or concerns.

Instructor tips:

- Review each group's progress report and provide support as needed, consider the nature of the problem such as a group struggling to format their information correctly or a lack of information in a given area of the research plan.

Objective #2: Groups will conclude their research and begin summarizing their information in a presentation to post to the class online discussion forum.

Instructor tips:

- Encourage students to review their work and discuss their thoughts with the group in order to resolve any unfinished tasks.
- Review each group's work to ensure they have the required information in order to begin drafting their presentation.
- Helping students review and critique their work will help them develop an analytical point of view and demonstrate how an objective view of their findings will help them improve their information for their presentation.

## Week 4

### Class #7: (90 minutes)

Objective #1: Groups will continue to work on drafting a presentation of their findings.

Instructor tips:

- Allowing groups a full class period to complete their presentations will help them to fully develop their thoughts and create supporting material (data visualization, videos).
- Conduct a final progress check with each group to review any remaining questions or issues.
- If a group is having difficulty or has not completed their work, consider allowing them extra time to complete their work.

### Class #8: (90 minutes)

Objective #1: Groups will present their findings to the class.

Instructor tips:

- Each group presentation should be roughly 5-10 minutes in length. Some groups may elect to designate a single speaker for the group while others may have all the group members speak in their presentation. Letting group's decide how they will present their findings is important in reinforcing their autonomy and the group's decision-making process. Groups who are confident with using technology may also choose to create a voice-over recording of their presentation.
- Before the presentations begin, remind students of the classroom and project conduct guidelines. It is important that students be respectful and support each other as this may be the first time a student will be speaking to a group and this project should be a positive and encouraging experience for students both in terms of their public speaking and research abilities.

Objective #2: Each student will complete a group evaluation survey and an individual skills inventory upon completing the research project.

Instructor tips:

- A survey allows each student to reflect on and assess their contributions to the group. This allows the instructor to recognize an individual student's efforts as well as prevents free riding as the students should be made aware at the onset of the project that they will be evaluated by their peers.
- Reflecting on how the group performed in various areas of the research project will help students gain a better understanding of how the skills they have learned contributed to the group project and encourage them to continue to use and refine those skills in other areas of the academic careers.

### Appendix A: Pre/Post Project Student Skills Inventory Example

Before we start our group project unit, please choose your level of confidence in each skill category.	Very Confident	Somewhat Confident	Somewhat Unconfident	Very Unconfident
Group Communication				
Technology Use				
Time Management				
Critical Thinking				
Problem Solving				
Public Speaking				

After completing the project, please choose your level of confidence in each skill category.	Very Confident	Somewhat Confident	Somewhat Unconfident	Very Unconfident
Group Communication				
Technology Use				
Time Management				
Critical Thinking				
Problem Solving				
Public Speaking				

## Appendix B: Research Topic Proposal Template

**Group Number** \_\_\_\_\_

**Names of Group Members**

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**Introduction:** (Write a 1-2 paragraph statement introducing your team's proposed project topic and how it relates to science. Hint: think of a question or problem your group would like to solve or learn more about).

## **Appendix B: Research Topic Proposal Template Cont.**

**Background Information:** What does your group already know about your proposed topic?  
How will this help in your research?

**Research Process:** How will your group gather information, what tools will you use?  
(hint: articles, case studies, videos, interviews, demonstrations)

### Appendix C: Online Discussion Forum Student Progress Report Template Example

**Group Number** \_\_\_\_\_

**Names of Group Members**

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**Progress Update:** What information has your group collected so far and how will it contribute to your group's project? How do you plan to present your findings in the final presentation?

**Areas to Explore:** What problems or challenges have come up during your research? What new thoughts or ideas have developed during your research?

## Appendix D: Online Discussion Forum Peer Feedback Template Example

Directions: Use this template to create your group's feedback to other group's project proposals and progress updates.

**Topic:** Is the topic of the project easy to understand? (Write a 1 paragraph statement explaining your groups response)

**Strengths:** What is the group doing well? What did you find interesting about their proposal or progress update?

**Improvement:** What can the group improve on to make their project more interesting or easier to understand?

## Appendix E: Individual Peer Evaluation Template Example

Congratulations on completing your group project! Please complete this form for each of your group members. (Please answer honestly as the results are totally anonymous!)

Directions: Use the following criteria to assign a performance grade to each group member.

**Excellent Contributor(5pts):** This student contributed greatly to our project. Without them, the quality of our final project would not be as good as it is.

**Good Contributor(3pts):** This student contributed a good amount to our project. Without them, the quality of our final project would not be as good as it is.

**Marginal Contributor(1pt):** This person barely contributed. Without this person, the quality of our final project would have been about the same.

**Poor Contributor(0pts):** This student did not contribute to the project in any meaningful way. Other members of our group had to do more work because of this person's performance. Without this person, the quality of our final project might have been better.

**Group Member Number**\_\_\_\_\_

(Mark the box you feel is most appropriate to this student's performance)

Excellent Contributor	Good Contributor	Marginal Contributor	Poor Contributor

Please add any additional comments that support your choice.



### Appendix F: Group Project Grading Rubric Example

Group #	Poor Quality (1pt)	Needs Improvement (3pts)	Meets/Exceeds Expectations (5pts)
<b>Member names</b>	No Names were included	Some names were included	All names were included
<b>Research quality</b>	Research was unclear, incomplete, or difficult to understand	Research was somewhat clear but requires more detail and connection to topic	Research was thorough, easy to understand, and strongly aligned with project topic
<b>Visual aids</b>	No visual aids used	Some visual aids used but unclear in their contribution	Several visual aids with clear connection to the data they represent
<b>Organization</b>	Unclear organization	Mild organization	Clear organization
<b>Communication</b>	Frequent communication issues	Few communication issues	No communication issues
<b>Collaboration</b>	Team unable to collaborate, frequent instructor intervention	Some collaboration, slight instructor intervention	Strong collaboration, no instructor intervention
<b>Problem solving</b>	Unable to solve problems or very few problems	Moderate problem solving, some problems remain	Little to no problem solving issues
<b>Summary</b>	Unclear connection between summary and topic	Summary lacking in some connecting information	Summary strongly reflects proposal
<b>Overall quality</b>	Poor quality	Decent quality, room for improvement	High quality, strong in all areas

**Directions:** Combine overall group score with individual peer evaluation score for each group member.

<u>Score</u>	<u>Grade</u>
45-50 points	A
40-44 points	B
35-39 points	C
30-34 points	D
30 or lower	E

## Appendix G: Student Code of Conduct

- **Respect:** All students are to treat their classmates with kindness and respect. This includes listening to their ideas without interruption, using school-appropriate language, and resolving any conflicts in a peaceful way.
- **Communication:** Students will cooperate and communicate with all of their group members, this project is an opportunity to practice honest and open communication with your peers.
- **Preparation:** Students will come to class ready to work, this includes bringing your chromebook and charger to class.
- **Responsibility:** Students are responsible for their portion of the group's work. Responsibility also includes active participation in all group discussions as well as contributing to the group's online discussion responses.
- **Academic honesty:** Students will complete their work without plagiarism through the use of generative AI (artificial intelligence) and the proper citing of sources.

## Appendix H: References

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