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What is Project Management?

Objectives

Students Will:

- Learn the basics of project management skills
- Work in small teams to complete a plan for a project using project management skills and terms

Suggested Grade Level

8th – 12th

Subject Areas

Project Management, Communications, Language Arts

Timeline

45 minutes

Standards (Common Core)

- CCSS.ELA-LITERACY.RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts
- CCSS.ELA-LITERACY.RST.9-10.5 Analyze the structure of the relationships among concepts in a text, including relationships among key terms
- CCSS.ELA-LITERACY.RST.9-10.8 Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem
- CCSS.ELA-LITERACY.RST.11-12.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas

21st Century Essential Skills

Collaboration and teamwork, communication, information literacy, flexibility, leadership, initiative, social skills, organizing concepts, constructing explanations, designing solutions, obtaining/evaluating/communicating ideas

Background

Project management focuses on planning and organizing a project and its resources. Through proper project management, you can assure that the purpose/vision and goals of the project are

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maintained, all while supporting the audiences' tasks and objectives. Additionally, you avoid risks, failure, and effectively and efficiently use your available resources. It also helps the team members to understand their responsibilities, the deliverables expected, and the schedule everyone needs to follow to complete the project on time and within budget. Project management begins with goal-setting based on the big picture idea of what they want to accomplish. When setting a project goal, ask "What has to be done?". This question leads to the project structure plan.

The very basics of project management are as follows: a project is a temporary endeavor with a defined beginning and end (usually time-constrained, and often constrained by funding or deliverables) that an organization takes to meet unique goals and objectives, typically to bring about beneficial change or add value.

The primary challenge of project management is to achieve all of the project goals and objectives while honoring the pre-defined constraints. The primary constraints are scope, time, quality, and budget. The secondary—and more ambitious—challenge is to optimize the allocation of necessary inputs and integrate them to meet pre-defined objectives.

Milestones define certain phases of your project and the corresponding costs and results. Milestones represent decisive steps during the project. They are set after a certain number of work packages that belong together. This series of work packages leads to the achievement of a sub-goal.

Projects are typically broken down into phases. Each phase outlines the work that needs to be done and who is involved. Generally, in order for a phase to be considered complete, specific deliverables need to have been completed and handed off for the next steps to be completed. Some project teams, however, do choose to implement fast tracking, which is when phases are overlapped. Phases may include, in the following order: **Define the project (identify problem and goal), plan the project (use timelines, set milestones and deliverables), do the project, then review the project outcome.**

When you set meaningful objectives and set targets to reach, you have the ability to measure success. There are two types of goals/ objectives to consider. 1) User goals are users' task scenarios. They explore what users come to the website to achieve. 2) Usability goals should measure your users' ability to accomplish tasks on your site. This will tell you whether your site is effective, efficient, and satisfying to your users.

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A stakeholder is anyone who is affected by the results of your project plan. That includes your customers and end users. Make sure you identify all stakeholders and keep their interests in mind when creating your project plan.

Once you have a list of stakeholder needs, prioritize them and set specific project goals. These should outline project objectives, or the metrics and benefits you hope to achieve. Write your goals and the stakeholder needs they address in your project plan so it's clearly communicated and easily shareable.

Identify the deliverables and project planning steps required to meet the project's goals. What are the specific outputs you're expected to produce?

The Project Manager develops the Project Plan with the team and manages the team's performance of project tasks. The Project Manager is also responsible for securing acceptance and approval of deliverables from the Project Sponsor and Stakeholders. The Project Manager is responsible for communication, including status reporting, risk management, and escalation of issues that cannot be resolved in the team—and generally ensuring the project is delivered within budget, on schedule, and within scope.

Next, estimate due dates for each deliverable in your project plan. (You can finalize these dates when you sit down to define your project schedule in the next step.)

Look at each deliverable and define the series of tasks that must be completed to accomplish each one. For each task, determine the amount of time it will take, the resources necessary, and who will be responsible for execution.

It's the duty of the project manager to evaluate risks regularly. You should come into every project with the knowledge that all projects come with a variety of risks. This is normal. Always keep in mind that your project is a unique endeavor with strict goals concerning costs, appointments, and performance. The sooner you identify these risks, the sooner you can address negative developments.

Vocabulary

Goal, scope, deliverable, task, risk, stakeholder, project manager, milestone, activity, timeline, problem statement, requirements, time management, communication, role

Materials

- Student vocabulary reference sheet (one per student)
- Project management organizational chart (one per group)

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- Activity cutouts (one set per group)

Teacher Preparations

- Review organization chart, become familiar with terms
- Review student vocabulary reference sheet
- Check resources for further understanding of project management skills
- Prepare activity cutouts

Lesson

1. Divide students into groups of 4 or 5.
2. Explain the final goal of the activity is to “launch a rocket” into space. Groups will be given a set of cutouts which state project deliverables with accompanying milestones, activities, and tasks. It is their job to place the cutouts in order of completion to achieve the overall goal.
3. Give each student a vocabulary reference sheet to keep and follow along with terms as they are taught.
4. Use direct instruction to teach students (whole-class instruction) about project management and its various components (incorporate resources listed below if desired).
5. Give each group a set of activity cutouts (optional: laminate cutouts).
6. Instruct students to organize the cutouts in the order that best makes sense to their team.
7. Set a time limit for the activity.
8. When time limit is reached, have each group select a project manager. This decision should be based on who they feel would make the best leader for their group (Who took charge during the activity? Who had the best initiative?).
9. Have project managers share with the class the thought process their group used when organizing the cutouts as well as the order in which their cutouts were placed.
10. As a class, discuss the differences between each groups' final products and thought processes.
11. Have students think about a particular school project when project management skills would have been or will be useful.

Extensions

- 1) Have students come up with their own project and create cutouts. Activity must have two deliverables, two activities per deliverable, and some tasks.

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- 2) Have students begin learning about and using online project management resources such as *Trello*.
- 3) Have students use project management roles and skills for a long-term project throughout the semester.

Resources

Five Structures for Helping Students Learn Project Management. (2019, March 06). Retrieved from <http://www.spencerauthor.com/project-management/>

Kshama. (2018, July 04). The Basic Principles of Project Management. Retrieved from <https://www.simplilearn.com/project-management-basic-principles-article>

Learning. (n.d.). Retrieved from <https://www.pmi.org/learning/library/empowering-kids-through-project-skills-7220>

Project Management Basics. (2013, December 16). Retrieved from <https://www.usability.gov/what-and-why/project-management.html>

Project Management Basics: 6 Steps to a Foolproof Project Plan. (n.d.). Retrieved from <https://www.wrike.com/blog/foolproof-project-plan/>

The Complete Glossary of Project Management Terminology. (2019, June 19). Retrieved from <https://www.smartsheet.com/complete-glossary-project-management-terminology>

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Student Vocabulary Reference Sheet

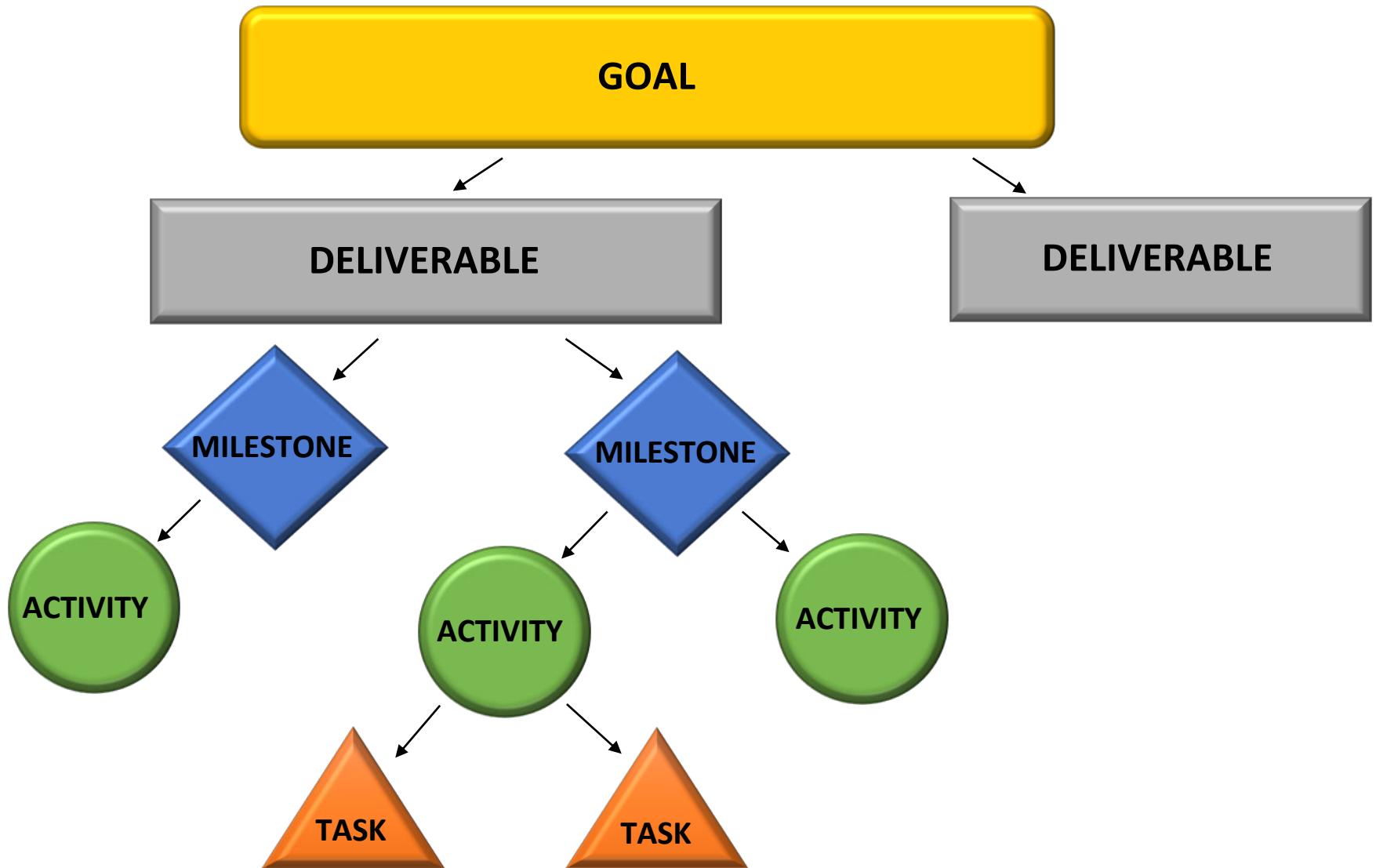
Term	Definition
Goal	The object of a person's ambition or effort; an aim or desired result
Scope	The scope of a project constitutes everything it is supposed to accomplish in order to be deemed successful.
Deliverable	A deliverable is a tangible action item within a project. It is an element of output within the scope of a project. There can be one or several deliverables within a single project. When a deliverable is ready, that means a milestone has been met. Often deliverables are dependent on another deliverable being completed first.
Task	A unit of work or activity needed for progress towards project goals. Typically, a task must be completed by a set deadline.
Risk	The probability of occurrence of a specific event that affects the pursuit of objectives. Risks are not negative by definition. Opportunities may also be considered risks.
Stakeholder	Any party with an interest in the successful completion of a project. More generally, the term refers to anyone who is affected by a project.
Project Manager	The person tasked with initiating, planning, executing, and closing a project, and with managing all aspects of project performance through these phases. The term is typically used for a project management professional. Project managers are able to use organizational resources for projects. They serve as contact points for sponsors, program managers, and other stakeholders.
Milestone	Milestones indicate specific progress points or events in project timelines. They mark progress needed to complete projects successfully.
Activity	The smallest unit of work necessary to complete a project work package (which includes multiple activities). Time, resources, and finances are required to complete each activity. Tasks may be added to further distribute an activity.
Timeline	A graphical, sequential representation of project activities.
Problem Statement	A problem statement concisely states and describes an issue that needs to be solved. It is used to focus and direct problem-solving efforts.
Requirements	A problem statement concisely states and describes an issue that needs to be solved. It is used to focus and direct problem-solving efforts.
Time Management	The ability to use one's time effectively or productively.
Communication	The imparting or exchanging of information or news.
Role	The function assumed or part played by a person or thing in a particular situation.

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Project Management Organizational Chart





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Activity cutouts (cut into strips along the rows, give one set to each group. Optional: laminate)

Cut along these lines →

Rocket	Build crew cabin	Activity
Rocket	Design crew cabin	Task
Rocket	Research new developments regarding safe materials and equipment for human space flight	Task
Rocket	Build rocket body	Activity
Rocket	Decide height of rocket	Task

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Rocket	Build rocket engines	Activity
Rocket	Test rocket engine parts	Task
Rocket	Build fuel tank	Activity
Rocket	Research inexpensive and efficient fuel options	Task
Rocket	Rocket fully assembled and ready for transfer to launchpad	Milestone
Launch	Decide launch date	Activity

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Launch	Research orbital periods of desired destination in relation to Earth	Task
Launch	Decide launch location	Activity
Launch	Research current active launch location availability	Task
Launch	Select astronaut crew	Activity
Launch	Assign roles and responsibilities to astronaut crew	Task
Launch	Astronaut crew training	Task

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Launch	Rocket is at launchpad, crew is in cabin, all systems go	Milestone
Mission Details	Decide purpose of the mission	Activity
Mission Details	Research what would be important to the scientific community to learn from the mission	Task
Mission Details	Obtain budget details to help guide purpose of the mission	Task
Mission Details	Decide where rocket is going	Activity
Mission Details	Decide length of mission	Activity

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Mission Details	Research effects of microgravity on the human body	Task
Mission Details	All mission details confirmed	Milestone

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