About me

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Introduction

Learning Objectives

- Understand how projects work and how to effectively support, manage and guide students in leading projects
- Learn how technology tools can contribute to more successful and engaging projects
- Develop an understanding of how to define, plan, execute and review projects
- Understand how 21st Century Skills apply to and are developed through project-based learning
What is project management?
The application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.

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<thead>
<tr>
<th>Five Groups</th>
<th>Ten Areas</th>
<th>Core Competencies</th>
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<tbody>
<tr>
<td>Initiating</td>
<td>Integration</td>
<td>People skills</td>
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<tr>
<td>Planning</td>
<td>Scope</td>
<td>Leadership</td>
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<tr>
<td>Executing</td>
<td>Time</td>
<td>Listening</td>
</tr>
<tr>
<td>Monitoring and Controlling</td>
<td>Cost</td>
<td>Integrity, ethical behavior, consistent</td>
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<tr>
<td>Closing</td>
<td>Quality</td>
<td>Strong at building trust</td>
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<td></td>
<td>Procurement</td>
<td>Verbal communication</td>
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<tr>
<td></td>
<td>Human resources</td>
<td>Strong at building teams</td>
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<tr>
<td></td>
<td>Communications</td>
<td>Conflict resolution, conflict mgmt</td>
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<tr>
<td></td>
<td>Risk management</td>
<td>Critical thinking, problem solving</td>
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<tr>
<td></td>
<td>Stakeholder management</td>
<td>Understands, balances priorities</td>
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</tbody>
</table>

**TEKS 130.302 PIT Knowledge and Skills C1(G)** demonstrate planning and time-management skills such as project management and storyboarding and project management, including initiating, planning, executing, monitoring and controlling, and closing a project.
What is project-based learning?

Project-based learning is a teaching and learning method that engages the students in an active learning process by having the students plan and complete projects instead of listening to lectures. The students draw on various resources to answer questions, solve problems, and develop a product. Throughout the process, students gain knowledge about a subject and apply 21st century skills.
Why project-based learning?

“We need intellectual curiosity, problem identification and problem solving, group work, creativity, self-motivation and self-direction—very, very different kinds of skills—and they need to start being developed very early in the education process. Yes, we can absolutely teach these things.” — Andrew McAfee, Associate Director of MIT Center for Digital Business

“The new analysis of employment data shows that the job categories with the highest growth tend to require higher social skills, analytic savvy and technical prowess. Since 1980, employment in jobs requiring stronger social skills, namely interpersonal, communications or management skills, increased from 49 million to 90 million, or 83%. Further, employment increased 77% (from 49 million to 86 million) in jobs requiring higher levels of analytical skills, including critical thinking and computer use.” — Pew Research Center, The State of American Jobs, 2016
# Project Characteristics

<table>
<thead>
<tr>
<th>PROJECT CHARACTERISTIC</th>
<th>EXPLANATION</th>
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<tbody>
<tr>
<td>Student-centered approach</td>
<td>Students are at the center of the learning process taking control of their learning.</td>
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<tr>
<td>Collaboration</td>
<td>Students work closely with peers, experts, and other community members.</td>
</tr>
<tr>
<td>Engaging Instructional Strategies</td>
<td>Students are motivated by important questions and finding solutions to real-world problems. Instructional strategies are varied and allow students to develop skills in different learning modalities.</td>
</tr>
<tr>
<td>Technology Integration</td>
<td>Technology tools are used seamlessly to support and enhance learning.</td>
</tr>
<tr>
<td>On-going Feedback</td>
<td>Students participate in multiple means of self, peer, and teacher assessment throughout the project cycle.</td>
</tr>
<tr>
<td>Demonstrations of Knowledge</td>
<td>Students share their knowledge and skills through published, presented, or displayed product and performances for an authentic audience.</td>
</tr>
</tbody>
</table>
Types of Projects

Projects that focus on inquiry and design are a natural fit for students to develop important Science, Technology, Engineering, and Math (STEM) skills. Whether projects are inquiry centered or design centered, successful projects are based on authentic, real-world problems that students care about.
Aiko Kashiwa teaches health and physical education at a junior high school in Kyoto. She has conducted a fairly traditional course for many years that includes skills instruction and tests with frequent lectures on topics related to overall fitness. This year, with the encouragement of her principal, Ms. Kashwi is assigning her student teams a project in which they create videos to promote a sport by emphasizing its physical, moral, and cognitive benefits, as well as the “fun” factor. Since most of her students participate in an after-school sport club, she has asked the teachers of these clubs to support the students in this project and they have enthusiastically agreed.

Most of Ms. Kawshi’s students are new to projects, so she is starting out slow with quite a bit of teacher direction. If everything goes well, she plans to give students more autonomy in future projects. She will focus on the planning phase of the project management cycle with this project.
Ben Freeman, an experienced high school history teacher, has been using projects with his students for several years. He has found that this learning strategy engages his students in thinking like historians, learning the process for historical analysis, and developing an understanding of the context of historical events.

The students in Ben’s 20th century American history class are working on a website project about the history of their school. Because the curriculum committee for his school has selected project management as a school-side focus, Ben’s instructional goals for this project include the development of analytical historical thinking, using technology to communicate ideas, with an emphasis on the Defining Phase of the project management cycle.
Voices from the classroom

High School Principles of Information Technology

(Hudson Middle School in Lufkin Texas, uses indoor hydroponic gardening as a way to teach principles of information technology)

Rebecca Reeder (that’s me!) teaches principles of information technology to 8th grade students for high school credit. Technology and 21st century skills are learned primarily through the doing phase of project management. However, rather than jumping in and “just doing” something, students devote time to defining and planning the farm-to-school business of hydroponics.

Students utilize business technology applications, such as spreadsheets, word processing and presentation software, to keep up with daily operations and to promote the farm-to-school program. Student-built ag technology is on the horizon!
Methodology

DEFINE. PLAN. DO. REVIEW.
Define
Initiate the project

**Student Outcomes**

- Students identify learning goals, end product goals and project process goals for their project
- Students determine the resources, constraints, assumptions, and scope for their project
- Students identify their deliverables, dependencies, and stakeholders
- Students complete the student project plan
- Students learn terms and apply concepts for the defining phase of a project
Define

Initiate the project

Before you begin

- Brainstorming / Generating ideas
  - SCAMPER
    - Substitute
    - Combine
    - Adapt
    - Modify
    - Put to another use
    - Eliminate
    - Reverse
Define

Initiate the project

- Develop Questions
  - Help your students to ask open-ended, deeper questions throughout the project using different questioning strategies
    - Question Modeling
    - Small-group discussion
    - Teach the Question Formulation Technique (QFT)
    - Think Pair Share
    - Student-led discussions
Define
Initiate the project

- Establish boundaries so that student projects do not become too big to conquer.
  - When students consider the scope of their projects, they need to identify
    - Resources
    - Constraints
    - Assumptions
Define
The Student Project Plan

**Defining Phase (Initiate the Project)**

**Student Project Plan**

Team Name ____________________________________________

Project Name __________________________________________

WHAT IS THE QUESTION, PROBLEM, ISSUE, OR PERSPECTIVE THAT IS DRIVING YOUR PROJECT?

**STEP ONE: ESTABLISH YOUR GOALS**

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>GOAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are your measureable or observable learning goals?</td>
<td></td>
</tr>
<tr>
<td>What are your measureable or observable goals for your end product?</td>
<td></td>
</tr>
<tr>
<td>What are your measureable or observable goals for project management processes?</td>
<td></td>
</tr>
</tbody>
</table>
Define
Initiate the project

Technology Tips

- Use technology to make the defining process more efficient and collaborative
  - Microsoft Products
    - Word, Excel, Onenote
  - Google Apps for Education
    - Google Docs, Sheets, Classroom
  - Audio / Video
    - Skype, Google Hangout, Smart Phones

“The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency. The second is that automation applied to an inefficient operation will magnify the inefficiency.” - Bill Gates
Plan

The second part of every project cycle

Student Outcomes

- Students identify success measures for their project
- Students plan their project with milestones, activities, resources, and potential risks identified
- Students develop a sequenced project schedule
- Students complete a project plan
- Students learn terms and apply concepts for the planning phase of a project

*A project plan is critical to keeping students on track and in control of their projects.*
Plan

The second part of every project cycle

- Present the Project
  - Review the project phases
  - Divide students into groups if it fits your project at this point
  - Present the project and deliverables
  - Provide project directions
Plan

The second part of every project cycle

- Getting Started in the planning phase
  - The importance of planning
  - Introduce the components of the planning phase
    1. Success Measures
    2. Schedule
    3. Resources and acquisition
    4. Risk management
    5. Monitoring and controlling
Plan

Success Measures

Step 1 in Planning: Success Measures

- Deliverables, how will students know they are meeting their goals?
- Checking off tasks is not enough
  - Quality of work, qualitative or quantitative
  - Measures can be related to project, career and college readiness, and 21st century skills.
  - Should be revisited throughout the project
Plan

Developing a Sequence and Schedule

Step 2 in Planning: Developing a sequence and schedule

1. Establish milestones
2. Define activities
3. List task related to each activity
4. Determine the sequence, or the order of activities and related tasks
5. Estimate the time of each activity
6. Build, review and revise the schedule
QUESTION, PROBLEM, ISSUE, OR PERSPECTIVE
I'd like my students to feel more control over their food choices.

GOAL
Grow at least 5 varieties of vegetables, in enough quantity that we can have a class harvest festival.

DELIVERABLE
A fully planted Garden

MILESTONE
All purchases complete

ACTIVITY
Plan and make all purchases

TASK
Make a shopping list

TASK
Buy fertilizer

MILESTONE
All soil preparation complete

ACTIVITY
Plan plots

TASK
Order seeds online

MILESTONE
Everything planted

ACTIVITY
Rilling and fertilizing

DELIVERABLE
Vegetables ready to pick

MILESTONE
Ev
Establish Milestones, step 1 in Sequence and Schedule

1. Critical points in the project timeline, key to monitoring
2. May or may not have a deliverable
3. Not written as “to do” items but as a statement of accomplishment
   - i.e. “All plants are harvested.” or “Landing page of website complete.”
4. Some milestones are dependent on preceding milestones
   - i.e. Students may need to present a speech to your school. In that case, the milestone “First drafts speech complete” will need to be scheduled, as well as “Second draft complete”, until the final presentation “Present to school assembly.” Each milestone must be complete before the next one begins.
Define Activities, step 2 in Sequence and Schedule

1. Things you need to accomplish to meet the milestones, which lead to the deliverables.
2. Establishes the major work.
3. Each milestone usually has multiple activities, can be simple or complex
4. Activities are written actions statements such as “plant seeds” or “transplant seedlings.”
Plan

Developing a Sequence and Schedule

List Tasks, Step 3 in Sequence and Schedule

1. The to-do list for each activity
2. Students can brainstorm the tasks, or detailed steps, that would be needed for each activity.
Plan

*Developing a Sequence and Schedule*

Determine Sequence, Step 4 in Sequence and Schedule

1. Refine milestones, activities and tasks
2. Define which are dependent and independent
3. Determine the order
4. Brainstorm and record
   1. Index cards, colored post-it notes
   2. Graphical organizer, flow charts
   3. Excel or spreadsheet software

*It's not a faith in technology, it's a faith in people.* – Steve Jobs
Estimating time, Step 5 in Sequence and Schedule

1. Elapsed time: How long it takes an activity or task to be completed
2. Work time: how long it will take to do the work

Work Time / # of People ≤ Elapsed Time
Plan
Developing a Sequence and Schedule

Build Review Revise Schedule, Step 6 in Sequence and Schedule

Now that all the information has been collected and organize, it is possible to build the schedule.

An excerpt of the schedule for the garden project might look like this:

<table>
<thead>
<tr>
<th></th>
<th>DELIVERABLE: 3 BEDS OF VEGETABLES</th>
<th>Estimated Work Time</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Activity: prep beds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1.1</td>
<td>Get neighborhood assoc. OK</td>
<td>1 hour</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1.2</td>
<td>Draw garden plan</td>
<td>4 hours</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>1.1.3</td>
<td>Buy plants and fertilizer</td>
<td>2 hours</td>
<td></td>
<td>D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1.4</td>
<td>Rent rototiller</td>
<td>NA</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>1.1.5</td>
<td>Turn over beds and fertilize</td>
<td>8 hours</td>
<td></td>
<td>D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contingency Day</td>
<td>NA</td>
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</tr>
</tbody>
</table>
Plan

Resources, Risk and Monitoring

- Step 3 in Planning: Identify Resources and Acquisition
- Step 4 in Planning: Planning for Risk
- Step 5 in Planning: Monitoring and Controlling
# Student Project Plan

## Planning Phase (Plan the Project)

Team Name ____________________________

Project Name ____________________________

Each deliverable will have its own planning documents. What deliverable are you planning with this document? (Use additional copies of this document for each of your deliverables.)

Deliverable: ____________________________

### STEP ONE: PLANNING YOUR SUCCESS MEASURES

What are your success measures for this deliverable?

<table>
<thead>
<tr>
<th>SUCCESS MEASURES</th>
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</table>
Do
The third part of every project cycle

Student Outcomes
- Students practice 21st Century and career-and-college ready skills
- Students learn processes for their work
- Students complete work
- Students learn terms and apply concepts of the Doing Phase of a project

“We all want progress, but if you are on the wrong road, progress means doing an about turn and walking back to the right road.” – C.S. Lewis
Do

The third part of every project cycle

- Step 1 in Doing: Assigning team and individual responsibilities
- Step 2 in Doing: Establish your monitor and control cycle

The core of the project is, in the end, the doing itself. The creation or implementation of The planning.
Do

Assign team and individual responsibilities

Team building is essential at the launch of a project, in reality it is a never-ending process.
Establish your monitor and control cycle

Much of the monitor and control cycle happens in this phase. Let students know that you will walk through each of the steps together as you evaluate progress.

- Sequence and schedule
- Group work checklist
- Project rubric
**Student Project Plan**

**The Doing Phase (Execute the Project)**

**STEP ONE: ASSIGN TEAM RESPONSIBILITIES**

Review the activities and tasks from your Planning Phase documents, and determine how you will assign work teams. As you agree on responsibilities, you should consider which activities are happening concurrently and sequentially, so that the work is distributed evenly across the amount of hours and number of people.

<table>
<thead>
<tr>
<th>TEAM MEMBER</th>
<th>LEAD ON ACTIVITY #</th>
<th>ASSIST ON ACTIVITY #S</th>
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<tbody>
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</table>
Review
The fourth part of every project cycle

Student Outcomes
- Students finalize their work
- Students share and celebrate their work
- Students reflect and assess
- Students complete the reviewing phase of the student project plan

It’s easy to neglect the reviewing phase since it seems like the most important work is done. In fact, reviewing may be the most important part of the project.
Review
The fourth part of every project cycle

► Step 1: Documentation
► Step 2: Develop a presentation
► Step 3: Reflection
Review
Step 1 of Review: Documentation

Before the project is complete, documentation is updated.

► Archiving information: data, records, photos or other information that may be needed in the future

► Lessons learned: what worked, what was not as successful, how might things be done differently
A presentation of results gives students a structure that enables them to finalize what they have learned and accomplished and to share with others.

- Steps to help with planning a presentation

1. Outlining
2. Goal setting
3. Key points
4. Presentation roles
5. Presentation items
6. Rehearsing
7. Presenting
8. Assessing
9. Documenting
Review

Step 3 of Review: Reflection

Giving students time to reflect on their process, hard work, challenges and accomplishments is important. This can be done as a whole group, in pairs or individually. Orally, written, or visually.

► Reflection Prompts

1. Consider project goals
   1. Were goals met or complete?
   2. Would you have added other goals, knowing what you know now?
   3. What did you learn about goal setting?

2. Consider final deliverables
   1. Are you happy with the quality of work?
   2. Are there parts of the final product you are more happy with than others?
   3. Are there things you would have done differently?
   4. Did you fully utilize your resources or were there other resources you wish you had available?
Review

Step 3 of Review: Reflection

Giving students time to reflect on their process, hard work, challenges and accomplishments is important. This can be done as a whole group, in pairs or individually. Orally, written, or visually.

- Reflection Prompts

3. Consider schedule and process
   1. Were you able to finish on time or ahead of schedule? If not, what were the challenges?
   2. What could you do differently in the future to avoid or address those challenges?
   3. If you were to do this project again, what would you reorder or refocus?
   4. What do you know about scheduling that you didn’t know before?
Review

Step 3 of Review: Reflection

Giving students time to reflect on their process, hard work, challenges and accomplishments is important. This can be done as a whole group, in pairs or individually. Orally, written, or visually.

► Reflection Prompts

4. Consider your team
   1. Were you satisfied with how well your team worked together?
   2. Were you satisfied with your own work as a team member?
   3. What could you have done differently working together that might have improved or changed the team process?
   4. What do you know about being a part of a team that you didn’t know before?
Review
Student Project Plan

The completion of a project usually requires a summative assessment by a teacher. A well-designed project rubric can simplify the final assessment.

You may choose to give students a role in this assessment. Student input can benefit both teachers and students.

### Student Project Plan

#### The Reviewing Phase (Close the Project)

**STEP ONE: DOCUMENTATION**

Your final Student Project Plan, all of your presentation materials, and any other items from the master inventory are your final documentation of the project. Make sure it is all organized in a project portfolio.

**STEP TWO: DEVELOPING A PRESENTATION**

1. What is the goal of your presentation? Write in the space below.

2. Based on your goal, what are the three to five key points you need to cover and in what order?

<table>
<thead>
<tr>
<th>ORDER</th>
<th>POINT TO COVER</th>
</tr>
</thead>
<tbody>
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Resource Review

- rebeccareeder@hudsonisd.org
- hms.hudsonisd.org/reederpd
- https://pmief.org/
- http://www.pmi.org/