



a template for setting up a
well-made, best-practice project
for your classroom.

PROJECT BASED LEARNING

Foreword

In 1916, a battle raged between two educational philosophers: John Dewey, who had just published *Democracy and Education*, and Edward Thorndike, who was deep into research surrounding the correlation of achievement, measurement, and motivation.

Dewey proposed that all learning is experiential, that people gain knowledge by reflecting on events that occur around them. He pushed others to expand beyond the prevailing notion that schools are meant to gauge ability, instead stating that educators are meant to develop lifelong learners. Dewey did not believe that true learning could be measured by school systems, and that important concepts such as empathy, happiness, and inquisitiveness could not be averaged. Taking a humanistic approach, he proposed that all learning should desire us to embrace life and comradery.

On the other hand was Thorndike. He preferred rational statistics and that people were motivated by rewards. Therefore, all learning should have an award to encourage completion, whether that be grades, ranking, or scores. He rested all faith in schooling to researchers, believing that they could develop great curricula that could be administered to every student, who would then consume it. Paramount to Thorndike's research was incorporating testing that measured a student's current progress, compared it to others, and rewarded based on performance, with the hopes of raising a better generation of learned people than ever before.

Obviously, any educator knows who won this debate: Edward Thorndike. For the last one-hundred years, educational policy has lent itself toward "tougher standards", "back to basics", "Every Student Succeeds", and "No Child Left Behind" - policies that embrace standardized testing, beating the "average", and a statistical look at our children.

But at what cost? Schools have doubled down on cramming information for state tests, despite it *hurting* academic results and *hampering* a love of learning. Time and time again, studies showcase how standardized testing destroy motivation, knowledge-growth, and critical thinking ([Natriello 1999](#), [Amrein & Berliner 2003](#), [New York State Education Department 2004](#), [Nichols, Glass & Berliner 2005](#), [Moses & Nanna 2007](#), [Wyn, Turnbull & Grimshaw 2014](#), [Ritt 2016](#))

Instead of finding ways to embrace a student's love of learning, ignite their passion, and focus on social and emotional needs to navigate the world, we persistently drill, cram, and mask an outdated model of education that serves to create rule-obeyers. It's sad and unjust that our students are not able to easily identify their purpose or pursuits in life. Their motivation tends to be just as Thorndike promised - achieving an A, obtaining the "next step" of education, pursuing a well-regarded college degree, and obtaining a low- to mid- level

starting position. Of course, this narrative is not true - A's do not equate to success, college is not for everybody, and degrees fail to find the many people a job in their major.

We need a return to John Dewey's modeling of education now more than ever. We live in a changing society where we *cannot* predict what will occur. We cannot "prepare students for the future" by teaching coding, robotics, a second language, every history fact, or Algebra II. That's not to say that these aren't interesting or inspiring topics for some students nor that they have no relevance. However, our students need four foundations to achieve:

1. A desire and love of learning that goes beyond the classroom.
2. The capability to dissect, analyze, and critically form opinions to both understand and creatively incorporate information.
3. The capability to deal with social and emotional situations for themselves and with others.
4. A passion, purpose, and identity that connects them to the world around them, inspiring change, activism, and commitment.

All of these foundations are abstract: they are not objective, they cannot be tested easily, nor are they subject-based. Dewey proposed using **experiential learning** to grow and develop learners. Instead of cramming ridiculous amounts of information up front, being assessed on it, then moving onto the next step, experiential learning involves **doing** - and learning **as** one does. There's no trivial assignments, irrelevant subject matter that's lost in a day, or inauthentic work. All learning is a reflection of someone doing something that matters.

With these traits, a student could go on to do **anything**. Although they may lack the content knowledge of a preparatory school peer, they have the wherewithal to surpass them in any given field they enter. Our students are bored, disillusioned, and apathetic toward the world around them, and schooling is a primary facet that drives this distaste. The problem will only get worse - technology and rapid access to information continues to plague traditional educational values. We simply cannot add a technological tool to teach old-school content using a screen, we need to embrace doing **real, meaningful work** in our classrooms.

This guidebook is written to help you understand, formulate, construct, troubleshoot, and share project-based learning - or experiential learning - at your school. We wanted a resource that was simple to understand, follow, and adapt to one's needs without seeking additional tools or feeling too confined. We wanted something approachable that could be shared with any educator.

We hope that you find this resource useful. May it serve you well!

Why PBL?

Project based learning (PBL) is working on a specific, authentic task by designing, developing, and creating a particular piece of work. Based on the philosophy of experiential and student-driven learning by John Dewey, PBL incorporates hands-on work which has proven effects on the retention of information. Students are more motivated on things that matter and PBL naturally lends itself to student differentiation, choice, accommodations, and developing practical knowledge. Once a project is in motion, you'll never want to return to purely stand-and-regurgitate teaching.

If you've ever asked yourself...

- How can I engage my students in something that *matters*?
- How will I motivate my students to *want* to learn?
- How can I teach someone *how* to learn?
- Is it possible to meet standards without lecturing, worksheets, and other content-heavy instruction?

Then we're here to help!

This guidebook will lead you through each major component of project-based learning. Our goal is to make you comfortable enough to launch your first project, refine your existing work, or clarify any misconceptions you have about PBL. Included are overviews of each concept, a template for your own project, and troubleshooting.

Acronym Guide

PBL (Project-Based Learning): Project-based learning is working through the design process on an authentic, student-driven project.

PBL (Problem-Based Learning): In problem-based learning, students are presented with a scenario (either abstract or real) with set steps to solve the problem. Problem-based assignments are typically shorter, simpler, and designed for learning concepts in a more applicable way than a packet.



PBL (Place-Based Learning): In this style, learners are connected to their local area to solve the needs of their community (also called CBL (community-based learning)).

CBL (Challenge-Based Learning): Similar to project-based learning, challenge-based learning emphasizes a particular authentic challenge that needs to be met, encouraging multiple ways to get there.

CBL (Competency-Based Learning): Here, students are assessed and focus on “soft skill” competencies, with projects focused on team-building and communication.

IBL (Inquiry-Based Learning): Students open each class through questions which they research, design projects for, or somehow actively participate in solving.

As shown above, educators tend to emphasize “*buzzwords*” in schools in order to start (most times, short-lived) “best practice.” Our goal in this guide is not to teach a narrow microcosm of learning. Project-based learning, in our view, is simply working by doing (or “active learning”), rather than working by a “drill and kill model.” Based on progressive principals, we simply want students to engage in work that matters, builds their character, encourages collaboration, and helps them make meaningful connections to content.

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Misconceptions

PBL is not...

Learning content, then making something.

PBL is not something on the side, nor is it just an assessment piece. PBL is the learning. Instead of listening to a bunch of information then creating a poster, or play, or whatever - PBL is simply performing the play. Students are encouraged to seek out information they need to complete the task for themselves. Instead of a test at the end of the unit, the project being successful is the test. This is often referred to as “*project-oriented vs. project-based learning.*”

Choosing a project from a pre-set pool.

“Student-choice” does not mean providing a faux choice through different means of expressing work to students. PBL tasks are authentic - and the project students choose should not be pre-structured, elementary, or a step-by-step process to follow. They’re not doing something, “just to do it.” Essentially, projects in this fashion are “active worksheets.”

Doing whatever you want.

Some educators believe that PBL opens the door to mass chaos. Strong PBL practice is highly structured, well-thought out, contains multiple check-ins, features teacher consultation, and has an end goal in mind. Short lectures, activities, and reflections normally occur during the PBL process - they just matter more because they inform an authentic project.



“Education is not preparation for life; education is life itself.”

John Dewey

Planning

Time for Planning

A huge barrier to entry for PBL is finding time to plan it. It is undeniable that large-scale, well-done projects require a substantial amount of training, collaboration, and planning (hopefully, this book helps you get started). However, a huge, often unspoken element of PBL, is that it cuts down planning during the actual project. Most learning during student work can be assessed at school via feedback sessions or reflections during class. There’s no need for daily worksheets or tests, nor constant supervision. As projects are designed to be student-centered, there is less of a need of a “security guard” teacher looking over someone’s shoulder - giving you time to assess each step of the project and make supplemental materials as needed.

Time for Content

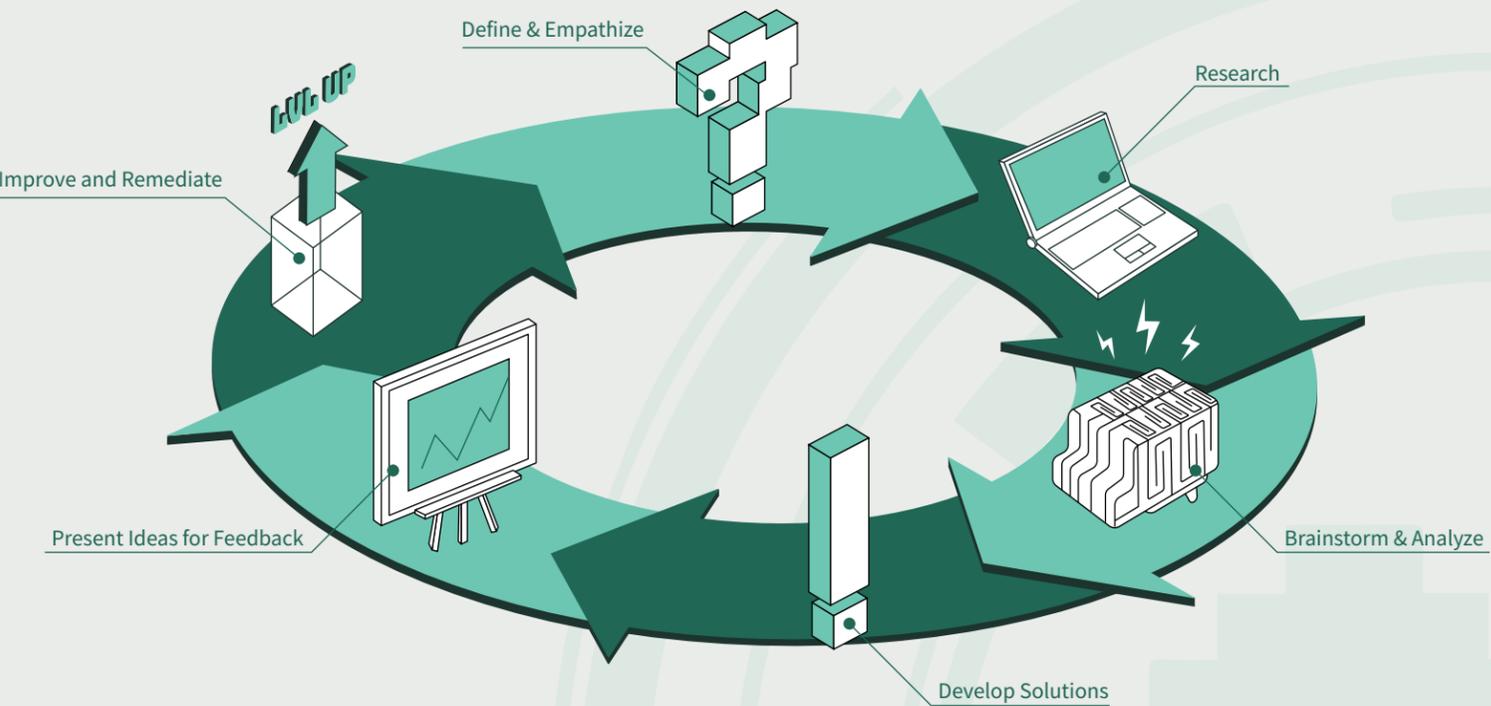
The most common “complaint” about project-based learning is, “I won’t have time to reach all of my standards!” This is true. It is simply not possible to have an authentic project that incorporates every standard without sacrificing depth in some while emphasizing others. However, this is the entire point. Students rarely retain information for state tests, let alone to the following year. So, why not instead focus on building skills and honing in the most important elements of your course? Students will retain more information in general, as well as gain valuable skills: leadership, teamwork, communication, grit, determination, risk, working through failure, giving and receiving feedback, and more. These skills are often “put on the side” of traditional “drill and kill” academics, which seems to defeat the whole purpose of school!

Where to Start?

This guidebook is designed to give you a simple overview, template, and action plan towards your first project. Simply put, you need to take a shot at it! Reading and researching about PBL can only take you so far. Similar to what we expect from PBL for students - learning comes through failure. Your first few projects may not materialize, be as fantastic as you imagined, or even last until completion - and that’s absolutely fine! In fact, students will buy-in further to your future projects if they know you’re willing to revamp the classroom with them in mind.

HUMAN RESTORATION PROJECT – WHAT IS PROJECT BASED LEARNING?

THE DESIGN PROCESS



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- Easier to provide structure
- Peer critique is simpler
- Safer and simpler to plan

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- Less student choice and possibly, motivation
- Students may opt-out or not relate to final product

EXAMPLE
(Make a profitable food truck)

FINAL PRODUCT PROVIDED

+

- Students may choose more creative and rigorous solutions
- Increased variety of work
- Differentiation is automatic

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- Difficult to structure for and plan to completion
- Differentiation may lend itself to wide gap in level of projects

EXAMPLE
(How can we feed the world?)

OPEN ENDED QUESTION

SINGLE-SUBJECT



CROSS-CURRICULAR



VS

Cross-curricular projects lend themselves to further learning opportunities. Every subject can blend to make learning more authentic - as the real world does not occur in silos. Plus, more instructors means more time, an additional perspective, more student connections, and additional feedback. However, this may lead to a headache of extreme scheduling conflicts.

TEACHER-LED



STUDENT-LED



VS

There's no denying that more structure will be emphasized by a teacher. However, your students will be missing out on learning to structure for themselves. Know your students' current level, challenge them, and figure out what fits best. You will eventually move into students running the entire operation themselves!

UNIFORM



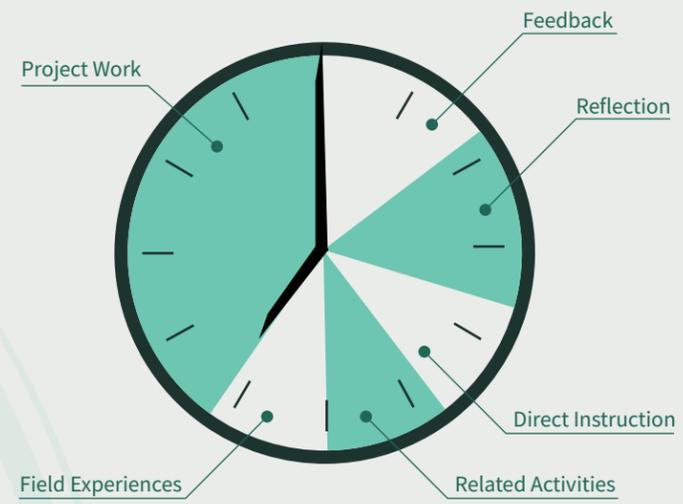
JIGSAW



VS

You can choose to break up content among different students' interests. It's important to not cram content standards into a project - the content should lend itself naturally! If students choose different topics, have them share it out! Students will learn more in something they're interested in - which will happen more often in a jigsaw approach.

TIME



Typically, authentic projects take quite some time to complete! That doesn't mean that every single minute is spent purely on projects. A lot can happen on the way. In fact, it should! Students will burn out otherwise. Planning out activities in advance is useful - but you'll need to monitor the needs of your students from week to week.

ASSESSMENT

- PORTFOLIOS
- COMMUNITY FEEDBACK
- PRESENTATIONS
- REFLECTIONS
- TEACHER CRITIQUE
- REMEDATION
- FUNCTIONALITY

BENEFITS OF PBL

(Some) research supporting PBL:

[Motivating Project-Based Learning: Sustaining the Doing, Supporting the Learning.](#)
Blumenfeld et al. 1991.

[A Review of Research on Project-Based Learning.](#)
Thomas, John. 2000.

[Creativity as a Habit.](#)
Sternberg, Robert. 2007.

[Project-Based Learning for the 21st Century: Skills for the Future.](#)
Bell, Stephanie. 2010.

[The New Education.](#)
Davidson, Cathy. 2017.

Building Soft Skills

Our society needs people prepared to find creative solutions to problems, work with a team, and self-impose time-management - not robotic repeaters of information. This is not to say that content isn't important - rather, it is imperative that we don't emphasize content over learning how to learn. Project-based learning naturally involves students demonstrating soft skills to successfully complete projects. If PBL is set-up and managed correctly, students will motivate themselves to learn and work through struggles.

Reinforcing Content

What is retained?

Projects will cover less content, but the content that *is* focused upon will be retained longer, as it is applicable. When someone discovers and experiences content, they will intrinsically inquire, care and apply their knowledge. As John Dewey explained: "Give the pupils something to do, not something to learn; and the doing is of such a nature as to demand thinking; learning naturally results."

It's not only about content - the entire design process teaches much more. Instead of having students regurgitate information, our goal through project-based learning to exemplify, demonstrate, and have students adapt the design process - which is a framework to complete tasks as well as *learn how to learn*. As educators, we need to ensure that learning is a life-long process and our students are ready to succeed in any endeavor they choose - not just traditional academic silos.

Do students need certain content?

State tests are looming over teachers' shoulders. Part of PBL is moving away from a test-based system. Students will still perform adequately on tests. There's a plethora of research to back this up (see [Needham 2010](#) or [Sahin & Top 2015](#) to start.)

However, there may be a battle in initially communicating the movement away from a traditional structure ("My child won't be prepared for 'x'!") Our goal as educators is to care about children; what they need to be the best version of themselves. PBL is designed to meet those needs, not the needs of a system that diminishes them. Plus, research is on your side! Why would we continue to promote a system that we *know* isn't working? You'll be amazed by immeasurable student growth in soft skills by the end of the school year.

What do they need?

If we focus less on content, that inevitable means something will be covered less or cut entirely. Look at your curriculum - what are your "need to knows" - what do you care about most? Ultimately, these would have been the most memorable lessons regardless - it's what you have a passion for! You don't need to give these up.

First, you could obviously structure this content into your project - or, utilize some time for discussions, mini-assignments, and more regarding your selected "core content." Students will care about these lessons more when traditional class is scheduled less.

Ultimately, it is of utmost importance that you keep it simple. Over analysis will not lead itself to a substantial gain in student understanding. You just need to create your stipulations, format your initial project role-out, and teach what you know is needed. Let's start today!

***Not convinced? Still have questions? There's a troubleshooting section at the end of this booklet!*



DEFINE



The best tasks are those that are *authentic*.

In order to frame your mindset on designing a strong project, we need to think about *real* issues in the *real* world. What do students care about? What do you care about? Don't worry too much about content relevance here - we'll focus on that later.

Brainstorm a list of *questions*. These questions should be broad, overarching ideas that attempt to remedy real world problems.

ex. How will we feed the growing population of the world?
ex. How can our school promote a positive environment?
ex. What products could help us solve the issues of climate change?

Again, we'll narrow this down later. The more ideas you think up - the easier this whole process will be! You can use this pool for years to come. If you're struggling, try looking at the following:

- Current events
- Recently released novels (fiction and non-fiction)
- Events happening at your school or in your student's lives
- Local organizations and their specialties
- Personal experiences you've been heavily interested in
- Your content's applicability

IDENTIFY CONNECTIONS

The more student, parental, communal, school (all staff, not just teachers), and worldly connection your project has, the more inherently authentic it will be. The community serves as not only a springboard for garnering interest, but as the experts for planning, developing, and providing feedback for your project. Note: experts are not limited to adults! Even if it's only a few students, focusing a project on their expertise will provide a huge motivational boost to the entire class.

Survey your students. Figure out their interests and what they're good at. Send out a parent letter asking for what they'd be willing to showcase to the school (we guarantee you'll receive a ton of feedback!) Then, think about what and who exists in your local community. In the box below, write *all of this information* down.

Can any of these people or organizations help answer the questions you proposed on the previous page? If so, let's make that connection!



RESEARCH



Choose something to start!

Now that you've started to think about what question you're trying to answer and made some connections, choose the concept that you find most invigorating. If you'd like, try choosing a few and surveying your students (even if it's for a future class). Narrow it down to one question. Even if you're not sure where it's going yet, we'll make adaptations on the way.

Now, let's start fleshing out this project.

What standards from your core curriculum are you addressing? Note: you shouldn't try to cram in every single standard that you normally would over the amount of time you're committing. Acceptance that student learning (in all facets) is more important than purely traditional standards is a *core component* of well-done project-based learning. Students will retain *more* information from these standards as it's applicable. Therefore, let's try identifying six or less standards from your core curriculum that would fit into this project.

Bonus: bring in more teachers! Co-teaching a project can be demanding, but will payoff in droves. If you have obvious standards that would fit in with another content area, include them as well!



BRAINSTORM



Decisions, decisions....

Will this project be open-ended or enclosed?

Do you have a specific task in mind for your students? If that's warranted for your classroom, you'll need to brainstorm an end product and exactly what you're looking for. As shown previously, an open-ended question (as you brainstormed) allows for more student choice, whereas an enclosed project is easier to manage and grasp. If you have time for multiple projects, starting enclosed and working towards open-ended likely makes the most sense. It all comes down to knowing your students.

Don't limit students by age, perceived ability, or community. Instead, gauge your students' level through a smaller, multi-day project to see how they perform.

Even if you're opting for the open-ended approach, you'll need to think about examples of what students may make.

Brainstorm a possible product(s) below.

Don't be afraid to share a final product. Educators are afraid that students will end up simply replicating what they made. Isn't it a good thing that students can achieve what an expert can do?

DEVELOP



Examples

We're sure you definitely feel overwhelmed. Designing a project is mentally taxing! Don't be afraid to seek out additional resources.

Here are two great places to find existing projects to adapt based on your students' interests and community needs:

[EL Education Models of Excellence](#)
[High Tech High Student Projects](#)

Be warned! Be careful not to design a project and all of its steps. You're starting to venture towards just doing a class project. Our goal is for students to learn while doing the project - which involves them figuring out many things by themselves!

Here's how this project may look so far:

You know that you have a vested interest in theater, and the majority of your class said they'd love to do some acting. There's also a local theater trope in your community! You've brainstormed, as a science teacher, standards involving weather that may make for an interesting performance. Then, you bring in an English teacher for their standards on writing and expression.

You invite one of the theater trope members to help you plan what elements would go into a theater performance, and compile all these resources. You come to the guiding question: *How can we put on a great performance that informs people about disastrous weather effects?*

This is not an entirely open ended project (you've limited students to a performance). But, there's a ton of authentic work that will occur, student choice for all the different roles in a performance, and (hopefully) something the community is interested in!

A well-designed project will be inherently interesting to the majority of students. However, it doesn't hurt to increase their buy-in through an interesting experience. Perhaps contact one of your connections for a demonstration, take a field trip, Skype with an expert, have students present information, perform an experiment or more!



What hook(s) can you incorporate?

FEEDBACK



Ask the audience!

The design process is not only for students, it's for you as well! A key element of any great design is consistent feedback and reflection. If students are not interested in your ideas, then obviously the entire point of this project is a farce! Present your ideas so far to a class (or classes.) Encourage them to offer substantial feedback. Here are some suggestions:

- Incorporate staff feedback (see page 23)
- Leave the room and allow for students to discuss your work without fear of judgment
- Use an anonymous Google Form for feedback
- Let students know your goals and desires for this project and be as honest as possible
- Let students know your struggles! (*if students are constantly reminded that you fail and struggle, they'll be more prone to be open and okay with this themselves!*)
- Consistently reinforce that this idea isn't final. Let students change things up - and actually listen and incorporate their suggestions.



What did you learn and/or change? Did you start over? Record this information here. We heavily encourage sharing this process with students and staff!

Failure is instructive. The person who really thinks learns quite as much from his failures as from his successes.

John Dewey

STRUCTURING FOR BURNOUT

A common misconception of PBL is that *all* instructional time is used for working on a project. This is actually true - but that truth does *not* imply a teacher does nothing but watch students work the entirety of the project. Instead, you need to structure lessons, reflections, activities, field trips, speakers, peer review, mini-projects, and more. This is to “rekindle the flame” of the project. It’s likely that students will burnout after the initial rollout of your project - it’s up to you to keep them going with interesting things!



The key is that everything here relates to your project. Lessons, even if lecture-based, will have buy-in if they are authentic and in relation to your project. We’re applying knowledge, not just drilling it!

Brainstorm each of the following. These all don’t necessarily have to be scheduled - just pull them out when motivation runs dry.

| | | |
|--|--------------------|--------------------|
| Field Trips | Lessons | Speakers |
| Mini-Projects <i>ex. a 1-2 day collaborative art project, where students present a basic concept, which is then put on display</i> | Peer Review | Reflections |

REFLECT

How are you doing so far?

Take a second to answer these questions. Get your ideas, inner thoughts, and struggles out. Don’t be afraid to confer with someone else about your feelings - they matter! And they will be incredibly important to a successful project.

What are you excited for in this project?

What are you worried about?

Do you think you’ll be successful?

What do you still need to do?

*Fear of failure is natural! In fact, there’s a possibility that this project won’t work at all. And that’s **okay**. How can we expect students to learn from and accept failure if we’re not willing to? Demonstrating this at a class scale will be an authentic learning experience for your students - as hard as it might be to accept.*

We do not learn from experience...we learn from reflecting on experience.
John Dewey

REMEDiate



Let's fix things up.

After reflecting on how we're doing, finding new resources, talking with others, etc. - you're probably wanting to change elements of your project.

The process of **remediation** - or correction - is important to your creation of this project, as well as your students' performance. We wouldn't expect something to be perfect the first time - hence why we allow students to improve their work.

In order to demonstrate this to students, as well as process this information ourselves, record below all of the changes you've made to this project since you began. Feel free to share this with your students!:

ANALYZE



Now, to organize all this!

You're well on your way to rolling out this project. But, let's make sure that you and your students can make sense of it. This doesn't need to be anything too complex - in fact - a mark of a strong demonstration is simplification of a complex concept.

We recommend creating a brief document that summarizes the following, which should be gone over with your students (either through a lecture or activity):

- The question they're answering
- Why this project matters
- Who their audience will be
- The guidelines (ex. deadlines)
- The design process (for their planning and as a roadmap). You can set deadlines based off of different elements of the design process (i.e. "By January 20th, you need to have research done on your concept, with at least 2 sources and a page of information.")

How will I keep track!?

First, your guidelines can be as strict or narrow as you'd like. The more enclosed the project, the stricter the guidelines will be. Again, be careful to not outline the entire project, or you're no longer using PBL (they're just obeying your steps). Simple guidelines are best: deadlines and components (must involve something written, something presented, etc.). Additional assessment and check-in ideas are found on page 25.

Second, take each step with each group individually, while paying attention to the entire classes' progress. Don't be afraid to roll out each step to the entire class at once, as they all reach that goal. However, have students work ahead through the design process on their own volition.

Students will most likely diverge from your original ideas. They'll come up with creative solutions beyond what you originally thought. *This is fantastic* - that's the entire point of PBL! Let them roll with it!

FEEDBACK



One last thing...

We're almost ready to go live with our project, but more feedback can never hurt. Gather as many staff members as possible (an entire staff meeting, if it works!) - and, if possible - invite students as well.

Prepare a presentation that allows for feedback on your entire project. This has three major purposes:

1. You'll receive feedback on your project (obviously).
2. Other teachers may collaborate and/or learn from your ideas.
3. You'll be practicing a roll-out of your ideas to your students, helping frame your thoughts.

We recommend structuring your presentation as follows:

- Your driving question
- The purpose behind what you're doing - what you want students to learn
- An example of what you want to see (see below)
- Demonstration of your hook, different mid-way activities, and the template you've constructed to roll out this project
- Feedback you've received from students so far

Then, allow substantial time for feedback:

- In your presentation, include instructions for feedback.
- Time for peers to ask questions on what they're confused about (not suggestions!)
- Time for peers to discuss elements of your project with each other, including what they liked and what needs improved
- Inclusion of either written or electronic feedback to submit positive feedback and critique
- Incorporation of sharing out these ideas with you (the presenter)

Now, you'll want to revisit previous elements of the design process to incorporate their ideas!



It's vital that you prepare an example of what students will be doing. Although this is a substantial amount of additional work, this will allow you to see faults in your design, additional things you need to explain, and exemplify each step to your students while instructing.

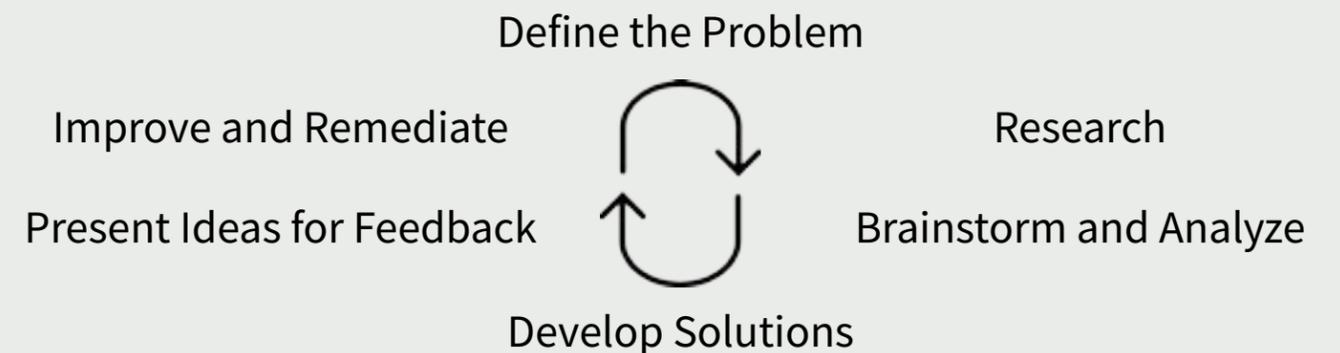
PRESENT



Let's roll out.

Organize everything, look it over, and get prepared to finally get started! Preparing a rough schedule may be in order - and don't forget about your hook activity!

Throughout this guide, you've performed project-based learning as well! This entire booklet *is* the design process:



Continue to Improve

The design process never ends! And, that means improvement never stops for students or for you. As you work through your project, you'll probably have some hiccups. It's up to you to reflect, improve, and remediate. And, note, not everything will be perfect this time (nor will it ever). We, as educators, learn through experiential learning just like students. We'' simply take what we now know, and apply it to future work!

Don't be afraid of failure. The reason why so many educators go back on their lesson plan track from eight years ago is *it's safe*. But *it's not* what's best for children. PBL takes risks, assumes failure, and has a rather steep learning curve for those not attuned. Invite others in, reaffirm yourself from your student's work, and spread experiential learning. Students around the world need you!

Check-ins and Assessment

Displaying Student Work

Students want to know their work matters. Authentic work will be presented or displayed. If your product is physical, work with your local community (museums, galleries, businesses) to house student projects. This connection will prove invaluable for bolstering an authentic audience for your students.

Furthermore, present student work around your school. The focal point of your hallways can be very telling for what you value. Is the primary thing noted on your walls rules from the handbook, or football season calendars, or bleak, black on white, Arial announcements? If so, think about what message this communicates to students. The more creative ways you display work around your school, the more academic buy-in you'll have (*our Reflective Development 006 covers this, as well as presenting to your community.*)

Celebrations of Learning

A simple way to garner an authentic audience is to have a biyearly or yearly invitation to your student's families and local community to view student work. Have students take the lead: create advertisements, prop up displays throughout the school, raise money for project funds, have a music concert - what have you! Let students present their work in a real moment of learning.

Checking in with Students

Throughout the project, it's important that we stay on top of what students are doing. Without basic direction, it's likely they will not use their time as wisely as you'd like. We recommend using a simple spreadsheet (i.e. Google Sheets) to track their progress. Simply have multiple check-in dates scheduled, with individualized/group-based goals written for each group. At each check-in date, call each group forward and give them a goal to work on.

If your project is hard to manage or needs even more tracking, try out [Trello](#) - a freemium resource used in real workplaces to track large numbers of number parts. This is a great resource to teach to students as well!

Group Work

Most students prefer to work in groups - but not all. It's up to your project and planning to figure out how to give everyone a unique, worthwhile role that fits their preference. We encourage you, if using groups, to assign specific roles to each student (ex. a leader, communicator, editor, etc.)

Portfolios

An easy way to assess students is by having them compile what they've learned in a portfolio. Give your students goals at the beginning of the year (they can set these, or you can supply them), and have them present their portfolio at the end of the year, based on what they've accomplished. For example, "Demonstrate non-fiction work in a creative way." The more open-ended you make portfolios, the more authentic work students will likely do. Many tech tools can assist with this form of assessment such as *Seesaw*.

Reflections

It's important to incorporate as many reflections as possible into your projects. Reflections aren't just feedback - but also looking towards the future. Encourage individual and group feedback, and written as well as verbal. You can use this data to assess students, change up your project, or rethink future ideas.

What of the final product?

It becomes difficult to figure out how to subjectively gauge your final product. Are you assessing the design process or just the product at the end? One suggestion we have is to make reflections a huge component of the grade. Reflections are easier when work is getting done, and learning can happen through failure easily with reflections. Another suggestion: allow the public to grade the final product (through a celebration of learning, or an expert).

Remediation and Failure

Failure must be normalized for PBL to work. It is normal to fail in real projects, so it is safe to assume that in school - students must now how to fail well. Don't make your project due on the last day of school. There must be a serious amount of remediation time for students to correct their work - especially if you can do so before a celebration of learning.

This process of failure and improvement should happen *multiple times* during the project. The more this is exemplified with students, the more it will be normalized, and the more learning that will occur. It's inevitable that with structured review, critique, presentations, and more - a student's final product will improve immensely. The bonafide example of this is [Austin's Butterfly](#).

TROUBLESHOOTING

Whew, PBL seems like a lot of work - because it is!

The most common barrier to successful PBL is becoming burnout and exhausted. How can teachers expect to do all of this!?

What's often not spoken about, is that PBL is simply planning and assessing more upfront, rather than during. What we mean by this, is that during the project - you'll find yourself talking, reflecting, and assessing students during school - rather than after school. Instead of planning each day, you'll go home simply reflecting and making improvements as needed.

There's no way I can plan all of this!

As stated on the sidebar, project-based learning requires a lot of effort before being rolled out. The good news is that it opens a lot of free time during the actual classes. So often, teachers are so stressed out during their lessons that they never foster relationships with their students. PBL allows for this, since your only major role during the lesson is supervision.

Furthermore, collaboration is key. The more teachers you can pull in to help - the easier this entire process will be. The more experienced you become working with others and going through this process, the more people will seek out your advice as the "PBL guru." And, in turn, the more your students will see applicability in their learning.

I want to collaborate, but our schedules don't line up.

When it comes to schedules, we can't help but reference Joe Biden's famous line: "Don't tell me what you value, show me your budget, and I'll tell you what you value." This is one of the key elements to understand when it comes to school schedules: they're siloed.

Once you understand this, there's two pathways. One - if it's possible to work with your administrative team and other teachers to make a more open-ended, collaborative schedule - do it! Otherwise, make it work. It will be messy: some students will have your class and not the other, class periods won't line up, there won't be space, and more. However, the majority of students will benefit and you'll see greatly learning regardless.

But what about state testing?

As mentioned at the beginning of this booklet, [research has proven](#) that students achieve the same results through PBL as they do through traditional teaching (which *doesn't* incorporate the other, additional skills students gain via PBL.) It's a big ask, but we encourage you to join the movement against standardized testing. Standardized testing is not a necessarily evil. These tests were never meant to make students competitive, become a multi-billion dollar industry, or hurt their mental health. We, as educators, need to recognize what's best for our students, which the modern testing industry has disregarded. Please see our [compilation of research](#) on the effects of standardized testing.

What about my standards?

PBL does not mean giving up all of your standards. However, it does mean you'll need to target a select few. The fact of the matter is, most students do not retain information from class to class. An easy assessment of this is to simply go to a class with your former students and survey them with basic concepts - you'll be shocked (and most likely, mortified) of what they don't know.

This calls on us to make activities that retain what we believe truly matters - and PBL is the perfect framework to allow for this.

Students are way off track when they should be working on a project. They can't handle it.

The first time you introduce PBL - there are going to be mishaps. Students are rarely tasked in traditional school to manage their time authentically. We need self-directed learners - but how do we teach this? Well, the answer is simple: allow students to practice it - and it will be messy. Part of your goal as an educator is to incorporate enough reflections, check-ins, meetings, and more to constantly redirect students and have them take control of their own learning.

This means that students will likely not reach as much information as you'd normally throw in. However, they're learning a lifelong skill rather than forgetting the vast majority of what you say in the upcoming year.



Some of my students have no interest in this project.

No matter how well you research and roll out this project, every single student is not going to be interested. If you want real student choice, you need to allow them to opt-out. We recommend a simple template where students go through a similar process that you did in this book to make their own project. Give them basic guidelines on what you want to cover, then let them express them in any way they want.

It is not advised to make a project for them. This is putting way more work on you, and not teaching your students the valuable skill of proposing alternatives. And, you might correctly think that many of these students won't put forth that effort (which, realistically, are many of your students who rarely participate regardless). We recommend reading up on [Restorative Justice](#), reflecting on that student's home experience, what resources you can provide to them, and meeting with administration, family, and them to try to solve the root issue of their problems, rather than forcing them into a project.

What am I supposed to be doing while students work?

Build relationships, check-in with students, redirect them, and help them with their work. Also: catch up on planning, grading, and take breaks. It's unrealistic to expect students to work 100% of the time without ever socializing, walking around, "goofing off", or going insane. And - it's unrealistic to think you would work 100% of the time either! Do what is best *for you* during that time frame. It's not entirely about students - *you* are important as well.

This all makes me very afraid.

PBL has many moving parts - not only do you need to plan this out for yourself, but you need to convince students, parents, other teachers, and administrators that this is best practice. Even once you get past learning all of this and rolling it out for yourself - what if an administrator walks past your room and sees (in their mind), chaos?

This all comes down to communication. Share all facets of PBL with students, parents, and administrators. If administration disagrees with you (and they've seen the research), this is obviously scary and discouraging. This is beyond our scope as educators - but you should do what is best for students - even if that means going against the grain. Don't be afraid to take massive risks when you are doing what you know is right.

Further Resources

This book is meant to be an overview of project-based learning. We encourage you to try it out. Spending all of your time researching and planning will not only be exhausting, but will have diminishing returns. However, if you're looking for a little more info., want to read more later, or are interested in sharing more, please check out these other fantastic resources:

[Digital Promise: Challenge Based Learning Guide](#)

[The High Quality PBL Framework](#)

[Buck Institute's PBL Starter Kit](#)

[Inquiry Mindset by Trevor MacKenzie](#)

[Linchpin: Are You Indispensable? by Seth Godin](#)

[How Children Succeed by Paul Tough](#)

[The Absorbent Mind by Maria Montessori](#)

[How Children Learn by John Holt](#)

[Experience and Education by John Dewey](#)

The path of least resistance and least trouble is a mental rut already made. It requires troublesome work to undertake the alternation of old beliefs.

John Dewey



