AGILE Principles

A common workforce practice applied to the K-12 Classroom small group project-based learning



Outline

The pillars of Agile

Scrums to Teams

Routines

Evaluation

What AGILE users do today

1. Individuals and interactions over processes and tools:

Prioritize effective communication, collaboration, and teamwork among team members. While processes and tools are important, they should support the team rather than dictate their interactions.

2. Working products over comprehensive documentation:

Delivering working products that provides value to the customer. Comprehensive documentation is important, but it should not be prioritized over actually having a working product.

3. Customer collaboration over contract negotiation:

Agile teams actively involve customers throughout the development process. Collaboration and feedback are valued more than rigid contract terms.

4. Responding to change over following a plan:

Agile recognizes that change is inevitable and encourages teams to be flexible and adapt to changing requirements throughout the project lifecycle.

How AGILE users apply the principles

AGILE terms	Classroom terms
Scrum Team	Project Team
Project Manager / Scrum Master	Teacher / Facilitator
Backlog	Project Requirements & Inquiry List
Sprint	Project Cycle
Backlog/ Sprint Planning	Project Kickoff Meeting
Daily Stand-Up	Daily Huddle
Working Software	Working Prototype/ Demonstrable Progress
Sprint Review	Project Showcase
(Implicit Agile) Retrospective	Project Debrief & Reflection

Scrum Team

a group of collaborators, typically between five and nine individuals, who work toward completing projects and delivering products. The fundamental scrum team comprises one scrum master, one product owner and a group of developers. Within a scrum team, there is no rank or hierarchy.

Project Team

A small, cooperative group of 4-5 students. With 30 students, this means 6-7 teams.

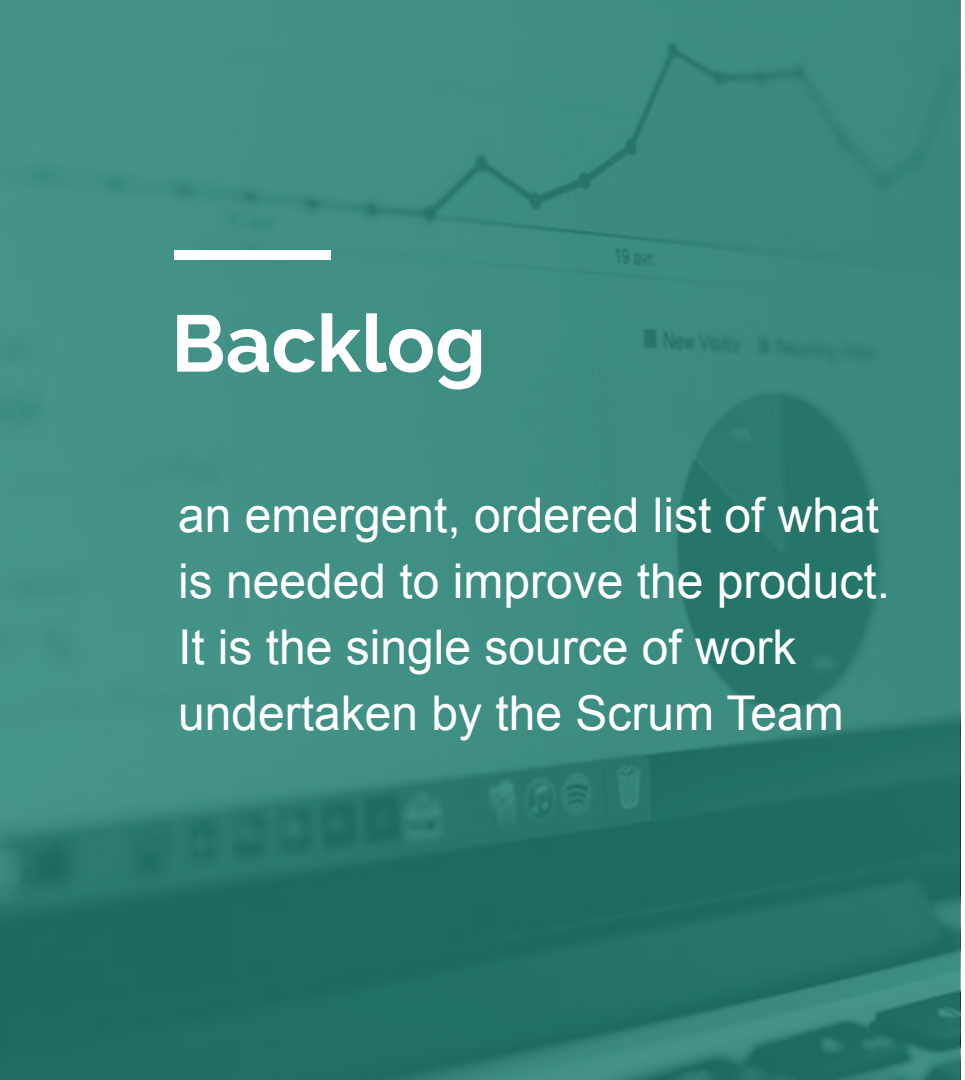


Scrum Master

A Scrum Master primarily focuses on facilitating the Scrum framework and guiding a development team

Project Manager/Facilitator

The Teacher shifts from lecturer to a guide, resource-provider and obstacle remover.

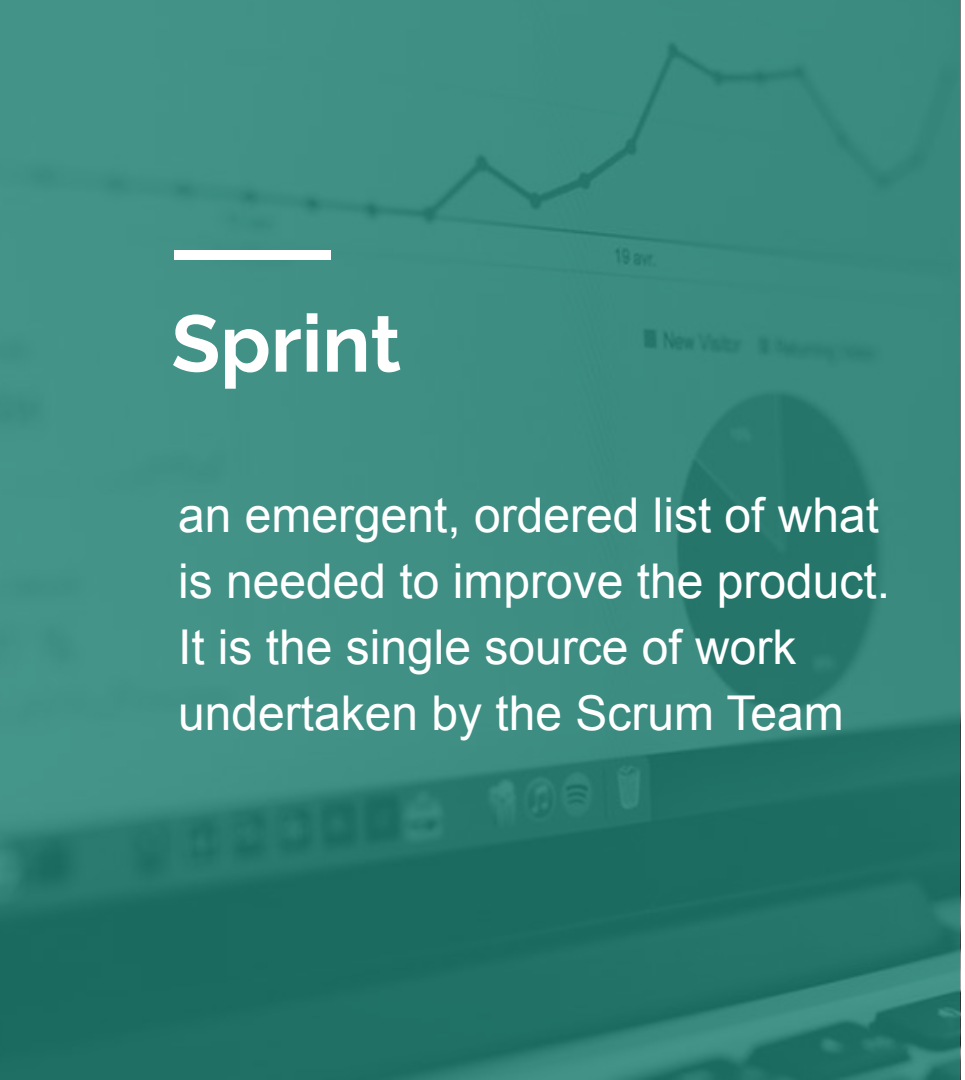


Backlog

an emergent, ordered list of what is needed to improve the product. It is the single source of work undertaken by the Scrum Team

Project Requirements & Inquiry List

A list of core curriculum standards, essential questions, and potential features or experiments the project must address.



Sprint

an emergent, ordered list of what is needed to improve the product. It is the single source of work undertaken by the Scrum Team

Project Cycle

A 1 to 3 week work period focused on a specific set of goals. We might have 2-3 cycles for a major project. For example, you could break a project up in parts like research, rough draft, and final presentation.

Backlog or Sprint Planning

an event in the Scrum framework where the team determines the product backlog items they will work on during that sprint and discusses their initial plan for completing those product backlog items

Project Kickoff Meeting

The first day of a Project Cycle where teams select specific tasks from the Requirements List to complete. In this step, there is a teacher created list with “Must Haves” and “Nice to Haves”

Daily Stand-up

an event in the Agile framework where the team determines the product backlog items they will work on during that sprint and discusses their initial plan for completing those product backlog items

Daily Huddle

A 5-minute meeting at the beginning of class for each team to sync up. They will answer these questions:

- *What did I accomplish for the team yesterday?*
- *What will I accomplish for the team today?*
- *What obstacles are in my way?*

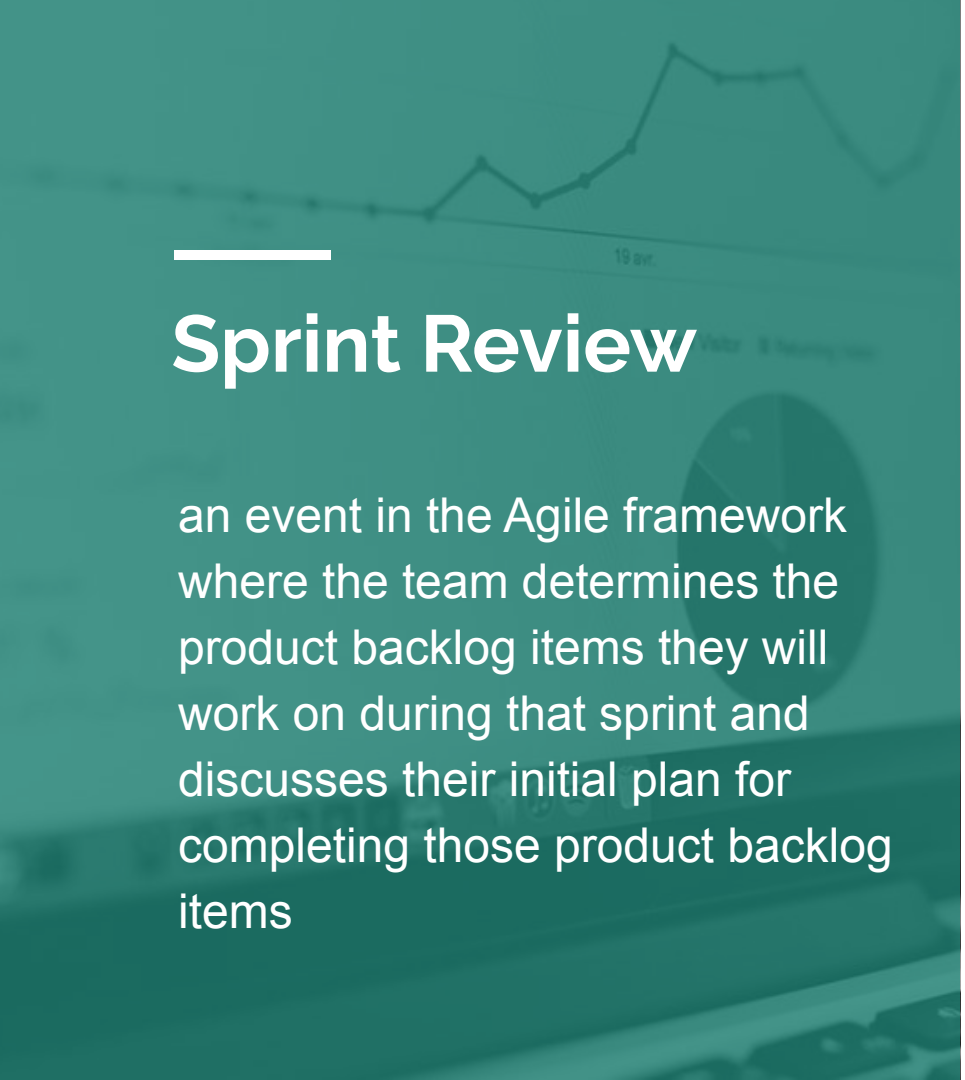


Working software or product

"working software is the primary measure of progress". This is a key pillar of AGILE. It focuses on having a functional product over documentation or milestones.

Working Prototype/ product progress

The tangible outcome of the cycle: a testable hypothesis, a data model, a presentation draft, a physical prototype, etc



Sprint Review

an event in the Agile framework where the team determines the product backlog items they will work on during that sprint and discusses their initial plan for completing those product backlog items

Project Showcase

A presentation at the end of the cycle where teams demonstrate their "working prototype" to stakeholders.



Retrospective

an event in the Agile framework in which the team reflects on the iteration and identifies ways to improve for the next cycle. The goal is to foster continuous improvement in team processes, teamwork, and overall effectiveness

Project Debrief and Reflection

A session after the Showcase for teams to discuss their process thru these 3 Questions:

1. What went well?
2. What didn't go well?
3. What to improve next time? (Process and Team Focused)

Assumptions

I made the assumption that teachers would want to use terms familiar to themselves and students. I do see value in using the Agile workforce terminology. These concepts are taught in paid webinars, college classes, and numerous books. These concepts were adapted by myself for a wider use than a software product. There is research to support AGILE principles use within the K-12 classroom. Most research was focused on computer science classes and took place before COVID. I was unable to find information to support if this impacted the continuation of this research.

Why it's better than existing solutions

AGILE principles should be able to improve your current small group project-based and inquiry-based learning.

- It has a daily accountability for team members within their team.
- It allows for creativity, problem solving, critical thinking skills, and task management
- It creates a dynamic, student-centered system and routines
- It gives a mechanism for the students to give you actionable data on improving your lessons/units.
- It creates a micro-version of a modern, collaborative, and results-driven STEM workplace

Routines

Teacher sprint review (Overview of Process)
Student Sprint review (Overview of Process)
Daily Huddle Routines
Project Showcase
Project Debrief & Reflection

Teacher sprint review (Overview of Process)

Sprint Planning	Sprint - development and testing	Potentially End Product
Teacher/Facilitator 1. Creates list of Must-Have elements of the project, and Nice-to-have elements of the Project. Present list of elements. 2. Establish possible timelines for the Sprint/Project.	Teacher/Facilitator 1. Facilitate allow them to work as a team. Help with obstacles. 2. Encourage students to journal at the end of class to prepare for the next day's huddle 3. Be supportive and patient. Use daily huddle to hold teams accountable	Teacher/facilitator 1. Create rubrics for all products 2. Design a product that allows for creative outlets and differing possibilities. (AI Prompting might be a resource) 3. End with Showcase and a Debrief/reflection



Student Sprint review (Overview of Process)

Sprint Planning	Sprint - development and testing	Potentially End Product

Scrums/teams

1. Prioritize the list of elements from list. Assign team members to elements.
2. Discuss creative products for the information.
3. Post their chosen tasks on a public space (a whiteboard or a digital tool like Trello or Padlet

Scrums/teams

1. Daily Stand up/ Huddle meeting.
   a. Answer 3 questions
   b. Ask for Help if needed
2. Daily work
3. Meet deadlines
4. Review prototypes and products with other groups for feedback

Scrums/teams

1. Prepare for the Project Showcase (deliver product)
2. Project Debrief & Reflection. (Focus on the process and use guiding questions)

Daily Huddle Overview

Beginning of class (5 Minutes)

1. Students go to assigned Team seating/meeting area.
2. They place things down. Take out journals (If used). Stand in their area (optional)
3. Students meet with team. Every Member answers the following questions:
    a. What did I accomplish yesterday for the team?
    b. What do I plan to accomplish today for the team?
    c. What obstacles or problems related to the project have arisen? (Team tries to resolve. If unable to they stay standing to allert teacher they need help.)
4. Sit down and start on project while teacher helps with problems.
5. Teacher should circultate and ask about their progress. Keep praise and directives focused on tasks and how they could improve their functioning.

Daily Huddle Routine

Welcome Teams.

1. Go to your teams and start your Daily Huddle based on our classroom norms.
2. Every Member answers the following questions:
    a. What did I accomplish yesterday for the team?
    b. What do I plan to accomplish today for the team?
    c. What obstacles or problems related to the project have arisen? (If unable to resolve within your team, report to teacher.)
3. Continue your fabulous work. Have a productive day!

Project Showcase Agenda

1. Team Order
2. Team 1: (Other teams take notes, generate questions for teams based on product presentation)
    a. Overview of state their product and highlight key points.
    b. Discuss how complete their product is and if they are done or wish to polish (revise, make it better) it more.
    c. Allow stakeholders(classmates) to give feedback or answer questions.
3. Repeat for each team. End with either another project planning for another Project Cycle or go to polishing for Project Debrief and Reflection.

Project Debrief & Reflection Routine

1. What part of our plan worked perfectly?"
2. "Where did our process break down?"
3. "What will we do differently in the next Project Cycle?"
    - This helps you think about how you worked as a team!
    - Any team praise or positive feedback or appreciation.
    - Celebrate completion of Product.

Evaluation

Review products and process

- ➔ Project Showcase - used to get feedback from peers, other teachers, and possibly administrators or community members. (Peer Reflection and feedback)
- ➔ Rubrics for each product
- ➔ Project Debrief & Reflection (whole class and team based) This is used to refine and polish the process and outcomes. It is to improve the class' routines and norms for these AGILE small group projects. It is to also increase student working relationships within the classroom and improve how they function within the team.

Questions?