ISTE+ASCD AI Innovator Studio Guide

Companion to the AI Innovator Studio Lessons

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The **AI Innovator Studio** was created through the collaboration of **ISTE+ASCD** and our partners **Lenovo, Microsoft, and Intel**, who share a commitment to helping educators and students explore the possibilities of AI through purposeful, human-centered design.

The Studio emerged from the success of the **AI Innovator Challenge**, where students around the world demonstrated remarkable creativity and curiosity in applying AI to solve real problems. The AI Innovator Challenge was expanded to include additional support for educators.

The Studio provides educators with structured lessons, flexible models, and globally aligned frameworks that help students **learn to design with AI—ethically, creatively, and collaboratively.**

This work builds on a shared foundation of learning principles and standards that have guided ISTE and ASCD's work for decades. The Studio draws upon:

- **The Transformational Learning Principles (TLPs)**, which emphasize agency, authenticity, collaboration, creativity, opportunity, and sustainability as hallmarks of meaningful learning.
- The **ISTE Standards for Students** and the **DigCit Competencies**, which define what it means to thrive as a learner and active participant in a digital world.
- The **AI Literacy Framework (AILit)**, developed through global collaboration among the OECD, European Commission, and Code.org, which identifies core domains for engaging with, creating with, managing, and designing AI.
- The **Profile of an AI-Ready Graduate**, introduced by ISTE+ASCD, which articulates six key roles—Learner, Researcher, Synthesizer, Ideator, Connector, and Storyteller—that together describe what it means for students to use AI to enhance their human potential.

Together, these frameworks and partnerships ensure that the AI Innovator Studio is grounded in both **research and relevance**, offering schools around the world a pathway to build capacity for innovation while preparing students to become the **AI-ready graduates** of tomorrow.

> **ISTE+ASCD** is proud to continue this journey with educators and students everywhere—connecting curiosity to purpose, and technology to humanity.

Welcome to the AI Innovator Studio

The AI Innovator Studio is more than a set of lessons—it's a space for educators and students to **learn how to design with AI**, not just about it. The Studio invites learners to explore how artificial intelligence can support creativity, problem-solving, and innovation with purpose.

Rather than focusing on step-by-step technical instruction or programming skills, the Studio emphasizes **the design process itself**—how ideas take shape, evolve, and come to life when AI becomes part of the toolkit. Each lesson opens a pathway for students to imagine, test, and reflect on how AI can amplify human potential while keeping ethics, empathy, and inclusion at the center.

For educators, the Studio provides **ready-to-use lessons, flexible models, and a clear design framework** that can be used in classrooms, clubs, or innovation spaces. Each lesson stands on its own or can connect to others in a progression, allowing facilitators to meet students where they are—whether they're new to AI or ready to take on advanced builds.

At its core, the Studio is built on a simple belief:

> When students see themselves as **designers, innovators, and responsible creators**, they begin to shape the future—not just adapt to it.

What You'll Find in This Guide

This guide is designed to help you bring the Studio to life with confidence and clarity. Inside, you'll find:

- **Your Role as Facilitator**
  Guidance on how to lead the Studio with confidence—selecting lessons, shaping experiences for your students, and using the built-in supports provided in each lesson.
- **How the Studio Approach Works**
  An overview of the Studio's design framework, learning flow, and alignment to key standards and global frameworks that connect innovation, AI literacy, and digital citizenship.
- **Using the Lessons**
  Practical insight into how each lesson is structured, what students will experience, and how the sequence of lessons builds deeper understanding and creative confidence.

- **How Educators Can Use the Studio**
  Ideas for planning, adapting, and implementing the Studio in different contexts—from classrooms to clubs—and ways to extend learning through the AI Innovator Challenge.
- **Reference Tools (Appendix)**
  Quick-access resources, frameworks, and planning aids to support you as you design, facilitate, and extend Studio learning experiences.

Use this guide as both a map and a companion—something you can reference, adapt, and return to as your students' ideas evolve.

The Role of the Facilitator

Just as AI depends on human direction to act with purpose, the Studio depends on the **educator** to guide the experience with intention. The lessons, tools, and frameworks are designed to support you—but it is your insight, decision-making, and connection to students that bring the Studio to life.

The educator remains at the center of the process—curating lessons, shaping inquiry, and creating conditions for meaningful, ethical learning. The Studio does not replace your role; it amplifies it.

Your Role in the Studio

Selecting Lessons and Planning

You choose the lessons and experiences that best fit your students' needs, curriculum goals, and readiness. Use the AI Learning Progression to identify where students are in their understanding of AI, and the AI Creation Menu to help them decide what kind of design or innovation focus will engage their interests. Together, these tools make it easy to build pathways that are developmentally appropriate, interdisciplinary, and connected to your school or community priorities.

Implementing the Studio

You determine how the Studio fits within your learning environment—whether that's a classroom unit, a cross-curricular project, an after-school club, or a full innovation pathway. The Implementation section of this guide provides models that can help you adapt lessons to your schedule, structure, and goals while maintaining alignment to the Studio's framework.

Facilitating Learning

In the Studio, your role shifts from instructor to coach and co-creator. You guide curiosity, help students unpack complexity, and encourage them to reflect on both their process and the ethical dimensions of their work. Each lesson includes Facilitator Notes to support you with pacing, scaffolds, checkpoints, and reflection prompts designed to make facilitation easier and more flexible.

Supports for You

You are not expected to do this work alone. The Studio includes several supports to help you implement confidently and creatively:

- This **Facilitator Guide**, providing framework connections, planning tools, and practical advice for running the Studio.
- The **AI Learning Progression** and **AI Creation Menu**, which help tailor learning experiences to your students' readiness and interests.
- **Lesson-embedded Facilitator Notes**, with tips and cues for pacing, observation, and student reflection throughout each lesson.

Facilitation Tips

- Model curiosity and critical thinking—students watch how you engage with AI as much as what you teach about it.
- Emphasize the process of design: test, learn, improve.
- Encourage students to connect their designs to real people, places, and needs.
- Prioritize reflection—help students think about what they learned, how AI shaped their process, and what impact their ideas could have.
- Celebrate creativity, inclusion, and risk-taking over perfection.

Thank You

Thank you for leading students into their future. By creating a learning space where curiosity meets responsibility and imagination meets technology, you are helping students see themselves as innovators—capable of shaping a better world with and through AI.

How The Studio Approach Works

The AI Innovator Studio is grounded in the belief that students learn best when they are **designing for something that matters**—to them, their communities, and the world. The Studio lessons are not step-by-step tutorials but carefully structured opportunities for exploration, creativity, and responsible innovation.

The AI Innovator Studio Design Framework

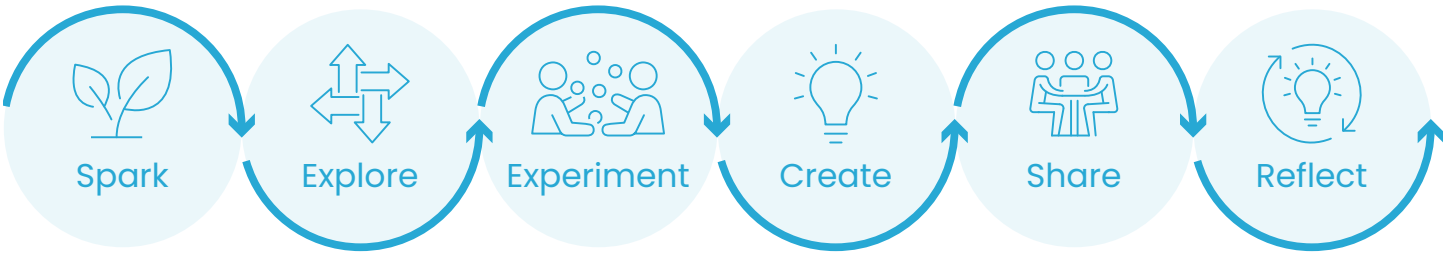
Each lesson is built from the **AI Innovator Studio Design Framework**, a structure that helps educators and students move from curiosity to purposeful creation. The framework is organized into three interconnected layers:

- **Foundation — Real-World Challenges (the "What")**
  This layer keeps learning rooted in authentic, meaningful problems. Students begin with empathy and local relevance, connecting their ideas to real people and communities. They also consider where AI may be useful—or where it might create new questions or limits. Why this matters for facilitators: The more students see the human side of their challenge, the more their solutions—and their understanding of AI—will hold meaning and purpose.
- **Methods & Tools — AI Literacy and Computational Thinking (the "How")**
  Students learn to use AI as a partner in thinking and creation. They explore the roles AI can play—assistant, thought partner, amplifier—and apply computational and design thinking to prototype ideas and solve problems. Why this matters for facilitators: This layer builds the bridge between curiosity and capability. Paying attention here ensures students experience AI as a creative and critical thinking tool, not a shortcut.
- **Reflection & Citizenship — Global Competencies (the "So What")**
  Every lesson concludes with reflection and discussion of impact. Students consider how their design choices affect others, what values guided their work, and how AI shaped their process. Why this matters for facilitators: Reflection transforms activity into insight. It's how students learn to balance innovation with ethics and begin to see themselves as responsible digital citizens.

These three layers give facilitators a clear lens for supporting students—helping them notice not only what students produce but how and why they design the way they do.

The Studio Flow

Each lesson in the Studio follows a **studio-based learning approach**—a rhythm of creation, feedback, and reflection familiar to artists, designers, and engineers. The flow moves through six phases: **Spark** → **Explore** → **Experiment** → **Create** → **Share** → **Reflect**.



Each phase contains a mini-challenge or focused activity that builds toward the main challenge found in the Create phase. This consistent flow allows students to think, test, and make in cycles, mirroring how real innovation unfolds.

The design of this flow is influenced by:

- **A design thinking approach** inspired by **Intel® Skills for Innovation**, along with global perspectives and cultural approaches to innovation—including *Two-Eyed Seeing, Ubuntu, and Frugal Innovation*—which remind us that creativity, ethics, and interdependence are universal values.
- **A range of instructional design frameworks** that shape how Studio lessons are structured, including principles from **Project-Based Learning (PBL)**, the **5E Model, Design Thinking,** and **Maker Education**, ensuring that each experience is both flexible and deeply engaging.
- **A focus on flexibility**: Each lesson can stand alone or connect with others as part of a larger progression. This adaptability allows every facilitator—regardless of schedule, subject, or AI experience—to guide students in exploring, designing, and reflecting in ways that fit their local context while staying grounded in global, ethical innovation.

Frameworks and Standards Woven Throughout the Studio

The AI Innovator Studio doesn't treat standards and frameworks as separate checkboxes—they're intentionally **threaded through every layer of the design**.

Each lesson is built on a connection to:

- The **ISTE Standards for Students**, grounding learning in creativity, communication, collaboration, and empowered use of technology.

- The **ISTE Digital Citizenship (DigCit) Competencies**, which help students act safely, ethically, and inclusively as they explore AI tools and digital spaces.
- The **AI Literacy Framework (AILit)** developed by the **OECD, European Commission,** and **Code.org**, which defines how learners engage with, create with, manage, and design AI systems.
- The **Profile of an AI-Ready Graduate** (ISTE+ASCD), which illustrates the six human-centered roles—Learner, Researcher, Synthesizer, Ideator, Connector, and Storyteller—that students can grow into as they use AI to enhance their own creativity and problem-solving.

These frameworks **work together**, appearing across all three layers of the Studio Framework—*Foundation, Methods & Tools, and Reflection & Citizenship*—to ensure that every experience helps students build not just skill with AI, but also the **ethics, agency, and global perspective** needed to design responsibly.

Using the Lessons

The AI Innovator Studio lessons are designed to feel like a **studio space**—creative, flexible, and built around purposeful design. Each one invites students to explore an idea, test an approach, and create something that connects human needs with AI possibilities.

These lessons are intentionally lightweight to run but deep in learning potential. They can be facilitated as short innovation blocks, extended projects, or parts of a broader course. What matters most is not the length, but the **flow of thinking and making** that each lesson encourages.

How the Lessons Work

Each lesson in the AI Innovator Studio is designed as a mini studio cycle—a flow of creative inquiry and iteration that mirrors how innovation happens in the real world. The six phases below create a rhythm that helps students move from curiosity to creation while building both confidence and purpose.

Phase	Purpose / Focus	Student Experience
Spark	Ignite curiosity and frame a meaningful challenge.	Students encounter an idea, question, or scenario that invites wonder or relevance.
Explore	Investigate examples, gather perspectives, and build understanding.	Students examine how AI and human creativity intersect in real contexts.
Experiment	Try ideas, tools, or strategies in low-stakes ways.	Students test possibilities, make quick prototypes, and reflect on what they learn.
Create	Build and express a solution, artifact, or concept.	Students tackle the main challenge, combining creativity, data, and AI thoughtfully.
Share	Communicate and receive feedback.	Students present, exchange ideas, and learn from peers' perspectives.
Reflect	Synthesize insights and consider impact.	Students evaluate their process, ethics, and the role of AI in their work.

Each phase includes a **mini-challenge or focused activity** that builds toward or emerges from the main challenge in the Create phase. This consistent flow allows students to think, test, and make in cycles, mirroring how real innovation unfolds.

The design of this flow and the sequence of our lessons were built from:

- **A design thinking approach** inspired by **Intel® Skills for Innovation**, along with global perspectives and cultural approaches to innovation—including T*wo-Eyed Seeing, Ubuntu,* and *Frugal Innovation*—which remind us that creativity, ethics, and interdependence are universal values.
- **A range of instructional design frameworks** that shape how Studio lessons are structured, including principles from **Project-Based Learning (PBL)**, the **5E Model, Design Thinking,** and **Maker Education**, ensuring that each experience is both flexible and deeply engaging.
- **A focus on flexibility**: Each lesson can stand alone or connect with others as part of a larger progression. Educators can integrate Studio lessons into existing subjects, use them in after-school or camp settings, or adapt them into full innovation pathways over time. This adaptability allows every facilitator—regardless of schedule, subject, or AI experience—to guide students in exploring, designing, and reflecting in ways that fit their local context while staying grounded in global, ethical innovation.

Inside Each Lesson

While each Studio lesson has its own topic and flow, they all share a common structure drawn directly from the Studio Lesson Plan Template:

1. Front Matter

Each lesson begins with an overview that includes:

- Lesson title, topic, and estimated duration
- Stage of the Studio Process and relevant ISTE Standards
- Learning goals written in student-friendly "I can…" statements
- Facilitator notes describing the lesson's big goal, context, and driving question

2. Studio Flow (Phased Lesson Sequence)

The six phases—Spark, Explore, Experiment, Create, Share, Reflect—also have a consistent format. Each phase includes:

- Purpose and intended outcome
- Student-facing challenge or activity
- Facilitator moves and checkpoints for readiness
- Inputs, tools, or starter pack tie-ins

3. Artifacts and Assessment
Every lesson identifies the tangible artifacts students create—such as sketches, AI outputs, prototypes, or reflections—and highlights the related rubric dimensions from the AI Innovator Challenge Rubric (e.g., innovation, ethical use of AI, collaboration).

4. Extensions and Connections
Optional follow-ups offer ways to expand learning: remixing the challenge for a new audience, extending the prototype, or connecting to the AI Innovator Challenge.

5. Resources and References
Tool links, media examples, and downloadable materials needed for facilitation.

Lesson Progression
The AI Innovator Studio includes a complete progression of lessons that together form a pathway from curiosity to application. Each lesson can stand alone, but when used in sequence, they scaffold students' growth as designers and AI-literate thinkers.

Facilitators can choose to:

- Follow the full progression as a semester or club series,
- Select lessons that align with local goals or standards, or
- Use individual lessons as entry points into existing subject areas or interdisciplinary projects.

AI Lesson Progression Table

Lesson # & Title	Brief Description	Artifacts in the Create Phase	AI-Ready Graduate Alignment
Lesson 1: Redesign the Everyday	Redesign a familiar object or everyday process for inclusivity, accessibility, or sustainability using AI as a coach and envisioner.	• Two prototypes: a feasible "Now" redesign and an "AI-Embedded" redesign • Problem statement and design annotations	• Ideator • Synthesizer
Lesson 2: Fix the Friction	Identify and solve small daily frictions in life or school, and design a reusable Prompt Path to guide others through the same process.	• A frugal prototype that solves a daily friction • A 5-step Prompt Path guide	• Learner • Ideator

Lesson 3: Reverse Engineering	Deconstruct existing AI and digital systems to uncover design choices, hidden assumptions, and user impacts.	• A Reverse-Engineered Design Map (inputs, processes, outputs, impacts) • Optional Model Card	• Researcher • Synthesizer
Lesson 4: The Impossible Idea	Imagine "impossible" AI solutions, then explore what would be needed to make them possible or why they should remain impossible.	• A studio prototype of an "impossible" AI solution • A feasibility roadmap	• Ideator • Researcher
Lesson 5: Empathy Interview Sprint	Listen deeply to real human experiences, compare human and AI interpretations of empathy, and design an AI Empathy Coach Prompt Pack.	• An AI Empathy Coach Prompt Pack that guides others through ethical listening	• Connector • Learner
Lesson 6: Design With Nature	Explore how natural systems can inspire human and AI design through biomimicry.	• A prototype for an AI system inspired by nature (biomimicry)	• Ideator • Researcher
Lesson 7: Reframe the Question	Explore how language, tone, and intent shape both human and AI-generated ideas and design a tool that helps others understand how framing guides creativity.	• A Reframe Tool or experience that demonstrates how language and AI shape ideas	• Researcher • Storyteller
Lesson 8: One Problem, Many Paths	Explore how one problem can be solved in many different ways depending on constraints, using AI as a constraint manager in a "Constraint Cook-Off" challenge.	• A prototype designed within specific constraints • Solutions showing creativity within limits	• Ideator • Researcher
Lesson 9: Data Investigator	Take on the role of data investigators to uncover how data can both reveal and distort the truth through framing, visualization, and bias.	• A responsible data story with visualizations that communicate clearly and truthfully	• Researcher • Storyteller

Lesson 10: Design in a Box	Design within constraints to create AI-powered innovations that work locally, responsibly, and sustainably.	• An AI-powered prototype that works locally • Annotated design showing data flow and human-AI collaboration	• Ideator • Synthesizer
Lesson 11: Design Through Their Eyes	Redesign a product, service, or system from multiple stakeholder perspectives, using AI to simulate and responsibly augment those perspectives.	• An inclusive redesign prototype showing how AI responsibly augments stakeholder needs	• Connector • Synthesizer
Lesson 12: The Failure Fix	Turn mistakes into smarter designs by using AI as both a diagnostic tool and a creative partner for redesign and improvement.	• A redesigned prototype that fixes a complex failure • Explanation of the failure and AI's contribution	• Researcher • Ideator
Lesson 13: AI Proof Lab	Move from fixing failures to proving readiness by building AI Evaluators that measure how well designs meet their goals.	• An improved prototype based on evaluator feedback • A Proof-in-Action visual	• Researcher • Learner
Lesson 14: Story of a Solution	Learn how persuasion works (Pathos, Logos, Ethos) and use AI as a partner in designing powerful, creative, and ethical persuasive stories.	• A persuasive advertisement (poster, video, audio, or storyboard) • Written explanation of persuasive choices	• Storyteller • Researcher
Lesson 15: Scale Swap	Explore how the scale of a problem or solution changes its design, feasibility, and consequences, using AI to simulate outcomes.	• A redesigned solution at a different scale • An Impact & Future Fitness Statement with safeguards	• Researcher • Synthesizer

Profile of an AI-Ready Graduate - Quick Reference

- **Learner**: Uses AI to set learning goals, create plans, get unstuck, and seek targeted feedback
- **Researcher**: Uses AI to investigate topics, analyze information, evaluate claims, and compare sources
- **Synthesizer**: Uses AI to synthesize, remix, and refine information into appropriate formats and complexity levels
- **Ideator**: Uses AI as a brainstorming partner to generate ideas and explore possibilities
- **Connector**: Uses AI to increase human collaboration, overcome barriers, and find common ground
- **Storyteller**: Uses AI to present and communicate complex ideas through multiple media formats

How Educators Can Use the Studio

The AI Innovator Studio was designed to fit a wide range of learning environments, schedules, and goals. Whether embedded into everyday instruction or launched as a stand-alone experience, the Studio helps educators guide students in exploring creativity, ethics, and problem-solving through design with AI.

Planning Considerations

When deciding how to use the Studio, consider:

- **Student readiness and interest**: Use the AI Learning Progression to identify the right entry level.
- **Time and scope**: Lessons can fit into single sessions or span weeks as extended projects.
- **Connection to local goals**: Select Studio challenges that align with district priorities, content standards, or community needs.
- **AI literacy growth**: Encourage students to explore multiple domains of the AI Creation Menu to expand their understanding of AI's potential and limitations.

The goal is not to complete every lesson—it's to build capacity for creative, ethical, and student-driven innovation wherever learning happens.

Sequencing the Lessons

There is no single path through the Studio. Each lesson can stand on its own or connect to others in a progression that builds students' skills and confidence over time. The lessons were sequenced based on a Design Thinking approach, so educators could work through the lessons as they move towards the Design Challenge. However, we have provided two other tools to help in selecting and sequencing the lessons in your individual studio: the AI Learning Progression and the AI Creation Menu.

AI Learning Progression

The AI Learning Progression outlines eight stages that describe how students move from curiosity to confident design. It helps facilitators identify where learners are starting and what kinds of lessons or projects will help them grow.

Level	Focus of Learning	Description
1. Engage with AI	Curiosity and Awareness	Students explore what AI is and where it appears in daily life. They use generative tools to spark questions and make observations.

2. Interact with AI	Exploration and Comfort	Students try out AI tools safely, understanding their possibilities and limits while learning basic prompting or interaction skills.
3. Create with AI	Guided Design	Students use AI as a creative partner—designing prompts, generating content, or producing simple prototypes.
4. Evaluate AI	Critical Thinking and Analysis	Students examine how AI makes decisions, analyze accuracy, bias, and reliability, and compare human and machine reasoning.
5. Manage AI	Ethics and Responsibility	Students practice making informed choices about AI use—considering data privacy, bias, and social impact.
6. Design with AI	Applied Problem-Solving	Students plan and prototype original solutions that integrate AI intentionally to address real needs or opportunities.
7. Build or Adapt AI	Technical Exploration	Students experiment with model training, API-based design, or chained tools to create more advanced AI-driven systems.
8. Evaluate and Share AI Systems	Reflection and Dissemination	Students test, refine, and communicate how their AI creations work, focusing on usability, inclusivity, and long-term impact.

Educators can use this progression to determine the best starting point for their learners and to plan how learning can evolve across a semester, program, or year. The appendix includes sample projects, tools, and teaching ideas aligned with each level to support lesson sequencing and adaptation.

AI Creation Menu

The AI Creation Menu complements the Learning Progression by helping educators and students decide **what kind of innovation or design focus** fits their interests and context. Rather than prescribing specific topics, it offers **five overarching categories** that represent the different ways AI can intersect with human creativity and problem-solving:

- **Human and Social Impact** – Using AI to improve lives, strengthen communities, and promote equity and well-being.
- **Creativity and Expression** – Partnering with AI to expand artistic, narrative, or reflective expression.

- **Learning and Growth** – Applying AI to personalize learning, provide feedback, and support skill development.
- **Data and Discovery** – Leveraging AI to explore patterns, analyze data, or design intelligent systems.
- **Advanced Design and Development** – Experimenting with more technical or ambitious builds that connect multiple AI tools or models.

These categories help frame the purpose of student creations, making it easier for facilitators to group projects, plan interdisciplinary work, or connect to community priorities. The full **AI Creation Menu** in the appendix provides expanded examples within each category, along with ideas for how AI might act—as assistant, thought partner, coach, or generator—within student projects.

Together, the Learning Progression and Creation Menu provide structure for where to begin and what to create, allowing facilitators to build pathways that match students' readiness and curiosity.

When planning your sequence, start with lessons that spark imagination, then move into ones that apply those ideas through ethical design, collaboration, and reflection.

Implementation Options

The AI Innovator Studio can be implemented in a variety of ways depending on time, goals, and student needs. Below are common approaches we have seen in other curricular implementations, each offering a different entry point into design and innovation.

In the Classroom

Integrate AI innovation directly into teaching and learning through:

- **Embedded Classroom Units** – Short thematic units within a subject area using Studio lessons to explore AI and innovation concepts.
- **Project-Based Learning Modules** – Sustained PBL units where Studio challenges drive inquiry and lead to public products.
- **Cross-Curricular Collaborations** – Teams of teachers from different subjects guiding one shared innovation project.

Beyond the Classroom

Extend learning opportunities outside the school day, giving students flexible ways to explore innovation:

- **After-School Innovation Clubs** – Ongoing clubs where students design projects, test ideas, and optionally prepare Challenge entries.
- **Independent Study or Capstone Paths** – Students pursue Studio-inspired projects as part of personalized learning or graduation requirements.
- **Advisory or Homeroom Sessions** – Teachers use shorter Studio prompts to build innovation mindsets gradually.
- **Break-Week Innovation Camps** – Intensive experiences during breaks where students work through Studio lessons in condensed form.

Special Events

Spark creativity and energy with concentrated, high-impact experiences:

- **Schoolwide Innovation Weeks or Hackathons** – Students form teams, ideate, and prototype solutions through a Studio-guided process.
- **Family or Community Innovation Nights** – Evenings where families explore shortened Studio activities together.
- **Pop-Up Innovation Labs** – Temporary installations in libraries, makerspaces, or community centers hosting Studio sprints.

Broader Programs

Use the Studio as a foundation for sustained innovation pathways across schools, districts, or regions:

- **Elective or Innovation Courses** – Dedicated courses in AI, entrepreneurship, or design thinking using Studio lessons as the core curriculum.
- **Community Partnership Projects** – Students co-design solutions with local organizations, businesses, or government agencies.
- **Regional or BOCES-Led Cohorts** – Multiple schools engage in the Studio simultaneously, culminating in a shared showcase.
- **Innovation Incubators or Makerspaces** – Studio materials available for self-directed exploration and prototyping throughout the year.

Connecting to the AI Innovator Challenge

While the Studio can stand alone as a complete learning experience, it also serves as a powerful pathway into the **AI Innovator Challenge**—a global opportunity for students to extend their ideas, collaborate with peers, and apply their creativity to real-world impact.

The Challenge invites student teams to design and present an AI-enabled solution to a local or global problem aligned with the **UN Sustainable Development Goals (SDGs)**. Through this process, students demonstrate the same mindsets and skills practiced in the Studio: curiosity, empathy, creativity, collaboration, and responsible innovation.

How the Studio Prepares Students

The Studio was built as a Design Thinking progression with your Challenge product as the focus of design. Each Studio lesson naturally builds toward the knowledge, habits, and ethics students need for success in the Challenge.

- **Real-World Relevance**: Studio lessons begin with meaningful, human-centered problems—mirroring how Challenge teams frame their SDG-aligned goals.
- **Creative Problem-Solving**: Students learn to ideate, test, and refine ideas, developing the persistence and imagination essential for innovation.
- **Ethical and Responsible AI Use**: Reflection and discussion phases help students consider data, bias, and social impact before building solutions.
- **Collaboration and Communication**: The Studio's iterative structure—feedback, sharing, and peer review—prepares students to present their ideas effectively.

Facilitator Guidance

Educators can introduce the Challenge as:

- A **capstone** following a sequence of Studio lessons,
- A **club or elective project** where students continue work begun in class, or
- An **extension opportunity** for motivated teams to deepen their designs and share them publicly.

The **AI Learning Progression** can help determine when students are ready to move from design exploration to Challenge-level problem solving. **The AI Creation Menu** can help them select focus areas that connect to community needs or global priorities.

Participation in the Challenge is optional, but it offers a meaningful next step for students ready to showcase their learning, creativity, and sense of responsibility. Whether or not they enter, the habits developed through the Studio—critical thinking, ethical reflection, and purposeful innovation—are the same ones that define every successful AI Innovator.

Appendix A: AI Innovator Studio Lesson Template

About the Template

The **AI Innovator Studio Lesson Template** uses a **phased flow** designed to make each lesson engaging, flexible, and deeply connected to the core goals of the Studio. Each lesson moves through a cycle of **Spark** → **Explore** → **Experiment** → **Create** → **Share** → Reflect, allowing students to experience a balance of curiosity, hands-on practice, creative production, communication, and ethical reflection.

This structure is directly grounded in the **AI Innovator Studio+Challenge Design Framework**, ensuring that every lesson naturally touches the three essential layers:

- **Foundation (the What)**: grounding challenges in real-world problems and perspectives
- **Methods & Tools (the How)**: developing AI literacy, computational thinking, and problem-solving
- **Reflection & Citizenship (the So What)**: embedding ethics, inclusivity, and global responsibility

The lesson template draws inspiration from a rich history of instructional design approaches:

- Like the **5E Model**, it begins by sparking engagement, moves into exploration and application, and closes with reflection and evaluation.
- Like **Design Thinking**, it emphasizes cycles of experimentation, prototyping, and iteration.
- Like **Project-Based Learning (PBL)**, it builds toward authentic artifacts and public sharing.
- Like **Maker Education**, it frames learning as hands-on, creative, and iterative — a studio where ideas are tested, built, and shown.

The strength of this template lies in its adaptability. Lessons can run as a complete arc in a single session, or facilitators can break them into mini-challenges over multiple meetings. This flexibility makes the design equally effective for structured classrooms, after-school clubs, and informal Studio environments.

In short: the AI Innovator Studio Lesson Template **keeps the energy of a challenge-based experience** while ensuring depth of learning, ethical awareness, and alignment to the global competencies students need.

AI Innovator Studio Lesson Template

Studio Lesson Design Elements (Front Matter – At a Glance)

Each lesson begins with a quick reference overview that includes:

- **Lesson Title**
- **Focus: Estimated Duration:**
- **Target Audience**
- **Stage of the Studio Process**
- **Dimensions of a Healthy Digital Citizen**
- **AI Literacy Domain(s) emphasized**
- **ISTE Standards Alignment**
- **Learning Goals**

Facilitator Notes

A short narrative section for orientation.

- **Big Goal of the Lesson**(why this challenge matters in the Studio context
- **How the Lesson Flows** —the six phases: Spark → Explore → Experiment → Create → Share → Reflect
- **Connection to the AI Innovator Studio Framework** —Foundation, Methods & Tools, Reflection & Citizenship
- **Facilitation Notes** —pacing, flexibility across sessions, emphasis on student ownership, etc.

Studio Flow

The six phases: Spark, Explore, Experiment, Create, Share, Reflect

For **each Phase**:

- **Purpose**: Why this phase matters
- **Intended Outcome**: What students should walk away with
- **Challenge Activity**: Student-facing instructions (concise, actionable)
- **Output**: What will be created or produced in this phase
- **Facilitator Moves**: Tips, scaffolds, cautions
- **References**: Starter pack tie-ins, global perspective callouts, media examples
- **Checkpoint**: What the facilitator looks for to confirm students are ready to move on

Artifacts & Assessment

- **Student Artifacts** - what students create during the session: posters, ads, prototypes, reflections, etc.
- **Assessment Focus** - 2 to 3 rubric dimensions from the Studio Challenge rubric that best match this lesson

Extensions & Connections

Optional enrichments and links forward.

- **Extension Challenges** - redo with constraints, remix for a different audience, apply a different lens
- **Connections** to the broader Innovator Challenge project or to future Studio lessons
- **Relevant Studio Callouts** - Ubuntu, Two-Eyed Seeing, Frugal Innovation, etc.

Resources & References

- **Tool Links**
- **Media Examples** used in the lesson
- **Documents** Needed for the Lesson
- **Necessary Links** (also embedded in the lesson)

Appendix B: AI Creation Menu
Exploring Domains and Possibilities

1. Accessibility & Inclusion

AI as a force for equity, usability, and belonging.

- Text adaptation for dyslexia (rewrite for readability).
- Reading level shifters (simplify/complexify text).
- Speech/pronunciation coaches for multilingual learners.
- Tone/style shifters for different audiences.
- AI to detect inaccessible website design (contrast, missing alt text).
- Real-time translation/localization into dialects or languages.
- AI companion for students with specific needs (text-to-speech, captioning, gesture recognition).

2. AI in Daily Life

AI as a personal coach or lifestyle assistant.

- Nutritionist: fridge/pantry scan: healthy snack/recipe recommendations.
- Fitness/dance/movement feedback (pose estimation + coaching).
- Sleep coach analyzing logs and habits.
- Stress-check chatbot detecting tone and suggesting mindfulness activities.
- Healthy routines recommender (study breaks, water reminders).

3. Communication, Media & Social Impact

AI as analyzer, critic, or content monitor.

- Persuasion detector (ads, political speeches, influencer posts).
- Fake news / misinformation tracker across news cycles.
- Media bias visualizer (compare news outlet framings).
- Online civility/inclusivity analyzer (detect catfishing, toxicity, exclusion).
- Debate partner that pushes counterarguments.
- AI watchdog that monitors other chatbots for bias or unsafe advice.

4. Creative Arts & Storytelling

AI as artistic collaborator or generator.

- Comic book generator: custom art + story mashups.
- Anime/manga-style book creation on any topic.
- Music producer: AI composes beats, remixes instruments.
- AI film studio: generate storyboards, videos, narration.
- Art history style-transfer tutor (transform drawings into historical styles).
- Folktale adapter: retells traditional stories in new formats while preserving cultural values.
- "Choose your own adventure" AI-powered narratives.

5. Community & Environment

AI as problem-solver for local/global sustainability.

- Waste-sorting coach (classify trash vs. recycling).
- School/community energy-use modeler + recommendations.
- Water-use predictor with conservation strategies.
- Climate data storyteller (turn datasets into interactive maps/infographics).
- Citizen science AI: train a model with collected environmental data (air, soil, biodiversity).
- Simulations of long-term impacts (climate, population growth, pollution).

6. Education & Learning

AI as teacher, explainer, or peer-supporter.

- Study buddy: quizzes, flashcards, practice problems.
- Peer feedback AI aligned to rubric.
- Subject "translator" (turn history notes into rap, science into comics).
- Math strategy analyzer (recognize and suggest alternate solution methods).
- AI explainer tools for peers/younger students ("teach AI to teach").
- AI museum exhibit: students curate AI to explain artifacts, history, or culture.

7. Data Science & Analysis

AI as analyst, classifier, or visualizer.

- Analyze school/community survey data → patterns + interventions.
- Scrape and analyze news cycles (AI in education, sustainability).
- Train classifiers (healthy/unhealthy foods, recyclable vs. not, positive vs. negative comments).
- Bias analysis tools: probe datasets and compare fairness outcomes.
- Generative simulations (predicting trends in sports, weather, economics).
- RAG bots (answer questions using a curated dataset).
- Local custom AIs (fine-tuned on community archives, oral histories).
- Synthetic data generators (safe testing sets).

8. AI as Coach / Thought Partner / Mirror

AI as collaborator in human learning and reflection.

- Socratic dialogue bots that probe assumptions.
- AI "mirror" that summarizes student ideas and asks clarifying questions.
- Growth mindset coach: gives encouragement and strategy tips.
- AI that role-plays future selves or alternative perspectives.
- Reflection journaling partner (records learning journey + critiques AI's misreads).
- Ethical dilemma simulator: AI takes stakeholder positions and argues them.

9. AI-Embedded Products & Experiences

AI integrated into larger builds or platforms.

- Websites with embedded chatbots (answer FAQs, guide users).
- Apps that combine AI with sensors (IoT + AI prototypes).
- AR/VR NPCs powered by AI for immersive learning.
- Games with AI-driven NPCs that adapt to player behavior.
- AI accessibility features embedded into class projects (captioning, translations).

10. Meta-Creations (AI About AI)

Students use AI to critique, teach, or demystify AI.

- AI ethics campaigns: posters, videos, simulations about bias and fairness.
- Explainers of AI energy/water footprint.
- AI timeline or "museum" exhibit of key events and dilemmas.
- Comparative tester: run the same query through multiple AI systems, analyze differences.
- Tools to audit AI decisions and visualize reasoning ("explainability dashboards").

11. Stretch / Advanced Builds

For ambitious or technically inclined teams.

- Custom agent chaining (GPT + image AI + data AI in sequence).
- Local deployment: run a small LLM on a school computer.
- RAG pipelines connecting local datasets to LLMs.
- Fine-tuning LLMs with specialized training data.
- Adversarial testing (try to "break" an AI model and record failures).
- AI "spec builders": outline requirements for impossible or futuristic AIs.

Appendix C: AI Learning Progression From Creative Use to Advanced Engineering

Level 1 – Using AI Creatively (Entry-Level)

Summary: Students explore AI as a creative partner, generating ideas, stories, images, music, and videos. The focus is on play, imagination, and critique; using AI outputs as sparks for human creativity.

Readiness:

- No prior skills required.
- Openness to experimenting and comparing AI vs. human work.
- Willingness to reflect on what makes outputs effective, biased, or limited.

Examples:

- Generate a short story, poem, or rap with AI and critique it.
- Create AI art to visualize a design idea.
- Role-play with an AI chatbot as a historical figure or stakeholder.
- Translate/adapt a passage into another language or style.
- Use AI avatars/voice tools to make a mini explainer video.

Possible Tools/Platforms:

- Chatbots: ChatGPT, Claude, Gemini.
- Creative tools: Canva AI, Adobe Firefly, Runway ML.
- Video/voice: Synthesia, Pictory, ElevenLabs.
- Music: Soundraw, AIVA, Beatoven.

Level 2 – Combining AI Tools (Multi-Tool Creation)

Summary: Students design workflows by chaining multiple AI tools together (e.g., text → image → video). They learn orchestration and how different tools complement each other.

Readiness:

- Familiarity with at least one AI tool.
- Ability to attribute sources and discuss AI limits.
- Comfort comparing outputs and remixing across media.

Examples:

- Advocacy campaign: AI drafts a script → image generator makes visuals → video editor combines.
- Data analysis + infographic: AI summarizes a dataset → visualization tool creates graphs → AI voice narrates findings.
- Interactive "AI museum" exhibit: chatbot guides + generated media.
- Multi-modal creative project: AI art + AI story + human narration.

Tools/Platforms:

- Orchestration: Playlab.ai, Zapier with AI integrations.
- Creation: ChatGPT, MidJourney/DALL-E, Canva, Pictory.
- Storytelling: Figma with AI plug-ins, Descript, Tome.
- Collaboration: Google Workspace with AI add-ons.

Level 3 – Embedding AI into Projects

Summary: Students make AI a functional component of a larger project — websites, games, IoT devices, or AR/VR. Here, AI is part of the product experience.

Readiness:

- Prior experience creating digital artifacts (sites, games, presentations).
- Awareness of AI's limits and importance of user testing.
- Interest in designing for others (audience focus).

Examples:

- Create a website with an AI-powered FAQ chatbot.
- Build a game with AI NPCs that adapt to player choices.
- IoT device that predicts when plants need water.
- AR/VR field trip with AI-driven guides.
- Class project presentation with live AI captioning/translation.

Tools/Platforms:

- Websites: Google Sites + chatbot embed, Wix with AI plugins.
- Games: Scratch + ML extensions, Roblox Studio, Unity with AI add-ons.
- IoT: Raspberry Pi + TensorFlow Lite.
- AR/VR: CoSpaces, Unreal Engine with AI NPCs.
- Chatbot builders: Botpress, Landbot.

Level 4 – Light AI Development (Custom Chatbots & Simple Models)

Summary: Students begin to shape AI behavior by building or customizing chatbots and lightweight models. They practice defining roles, designing dialogue flows, and curating small datasets.

Readiness:

- Strong prompting skills and role design.
- Basic understanding of datasets and training examples.
- Comfort testing for fairness and accuracy.

Examples:

- Create a museum guide chatbot trained on local history.
- Build a peer feedback bot aligned to a rubric.
- Program a book/snack recommender system.
- Design a bias-check bot that critiques chatbot responses.
- Prototype a chatbot that summarizes class notes.

Tools/Platforms:

- No-code builders: Playlab.ai, Botpress, Landbot.
- Model trainers: Teachable Machine, Peltarion.
- RAG-lite: Custom GPTs, NotebookLM.
- Extensions: Scratch with ML, Microsoft Copilot Studio.

Level 5 – Agents (Specialized AI Collaborators)

Summary: Students work with AI agents — autonomous, goal-seeking systems that plan steps, use tools, and/or collaborate with other agents. This moves beyond chatbots into multi-step reasoning and action-taking.

Readiness:

- Ability to manage chatbot conversations with roles and prompts.
- Understanding of AI ethics and risks in autonomy.
- Some exposure to APIs or workflow builders.

Examples:

- Multi-agent research team: one agent gathers, one analyzes, one summarizes.
- Debate agents that argue pro/con and adapt arguments.

- Study planner agent that creates schedules from syllabus data.
- Coach + critic loop: one agent suggests improvements, another tests them.
- Project management agent that assigns subtasks to other agents.

Tools/Platforms:

- Frameworks: LangChain agents, CrewAI, Microsoft Autogen.
- No-code: Playlab advanced agent features, AgentGPT.
- APIs: OpenAI function calling, Hugging Face pipelines.
- Orchestration: AutoGPT, Camel-AI.

Level 6 – Intermediate AI Development (APIs & Tool-Building)

Summary: Students build applications powered by AI using APIs and coding. They connect data, models, and interfaces to create purposeful tools.

Readiness:

- Basic coding (Python, JavaScript, or block-based).
- Understanding of APIs and how to pass data.
- Experience testing/iterating digital tools.

Examples:

- Build a speech analyzer for pace, tone, filler words.
- Prototype a sign language recognition system.
- Program a catfish detection bot for chat safety.
- Scraper that analyzes news stories for bias/misinformation.
- Recipe recommender from fridge image inputs.

Tools/Platforms:

- APIs: OpenAI API, Hugging Face Inference API.
- Coding: Python (Jupyter/Colab), JavaScript, Node.js.
- Web apps: Flask, Streamlit, Replit.
- ML kits: TensorFlow.js, ML5.js.

Level 7 – Advanced AI Development (Training & Fine-Tuning)

Summary: Students train or fine-tune AI models on curated datasets. They explore how data shapes bias, accuracy, and application. Focus is on ownership and domain-specific AI.

Readiness:

- Intermediate coding skills.
- Comfort preparing/cleaning datasets.
- Strong grasp of AI bias, ethics, and evaluation.

Examples:

- Fine-tune an LLM on local oral histories.
- Train a vision model to classify recycling or plants.
- Create a stakeholder simulation bot from interview transcripts.
- Build an energy/water use estimator for AI tasks.
- Retrain models for domain-specific tutoring (math, writing).

Tools/Platforms:

- Hugging Face Transformers, FastAI, AutoML platforms.
- Training: PyTorch Lightning, TensorFlow, Colab notebooks.
- Fine-tuning: LoRA adapters, PEFT libraries.
- Deployment: Hugging Face Spaces, ModelScope.

Level 8 – Expert / Stretch Builds (Full AI Engineering)

Summary: Students engineer complex AI systems — deploying local LLMs, chaining multiple agents, generating synthetic data, or testing new algorithms. This level emphasizes autonomy, scalability, and ethics at scale.

Readiness:

- Advanced coding and ML experience.
- Prior exposure to Levels 4–7.
- Deep understanding of AI sustainability, feasibility, and governance.

Examples:

- Build multi-agent ecosystems with role-based collaboration.
- Deploy a local/private LLM for school/community.

- Create a full RAG pipeline with multiple knowledge sources.
- Generate synthetic datasets for safe testing.
- Conduct adversarial testing to break models.
- Prototype new ML algorithms for classification or recommendation.

Tools/Platforms:

- Advanced frameworks: LangChain, CrewAI, AutoGPT multi-agent.
- Local LLMs: Llama, Mistral, GPT4All, Vicuna.
- Infrastructure: Docker, Kubernetes, Ray.
- ML stacks: PyTorch, TensorFlow, Scikit-learn.
- Deployment: On-prem servers, Hugging Face Hub.

Appendix D: Updated 2026 Rubric Criteria

1. Connection to Community Problem & SDG

- Clear definition of a local problem/concern.
- Meaningful connection to the chosen UN SDG.
- Evidence of empathy and understanding of those affected.

2. Responsible & Ethical Use of AI

- Safe, responsible, and ethical application of AI tools.
- Attention to bias, privacy, inclusivity, and digital citizenship.

3. Innovation and Creativity

- Originality in concept or novel application of AI.
- Creative problem-solving and design thinking approaches.

4. Impact, Relevance, & Longevity

- Potential to make a positive difference for intended users/community.
- Breadth of potential impact (who and how many could benefit).
- Evidence solution could be sustained or scaled beyond the Challenge.

5. Design Quality & Accessibility

- Solution is usable, inclusive, accessible, and feasible.
- Walkthrough/guide makes it clear how others can engage with it.
- Evidence of testing and iteration with feedback incorporated.

6. Collaboration & Process

- Team story demonstrates authentic student ownership, shared purpose, and meaningful collaboration within the team.
- Clear and purposeful outreach to others for expertise, feedback from those affected, and inclusion of diverse perspectives.
- Reflection highlights where the team iterated and what they learned through the process.

7. Collaboration & Process

- Team story demonstrates authentic student ownership and shared purpose.
- Evidence of collaboration within the team and outreach to others for expertise, feedback, or diverse perspectives.
- Reflection on what the team learned during the process.

8. Presentation & Communication

- Pitch video is clear, compelling, and within time limit.
- Narrative is engaging and easy to understand for a broad audience.