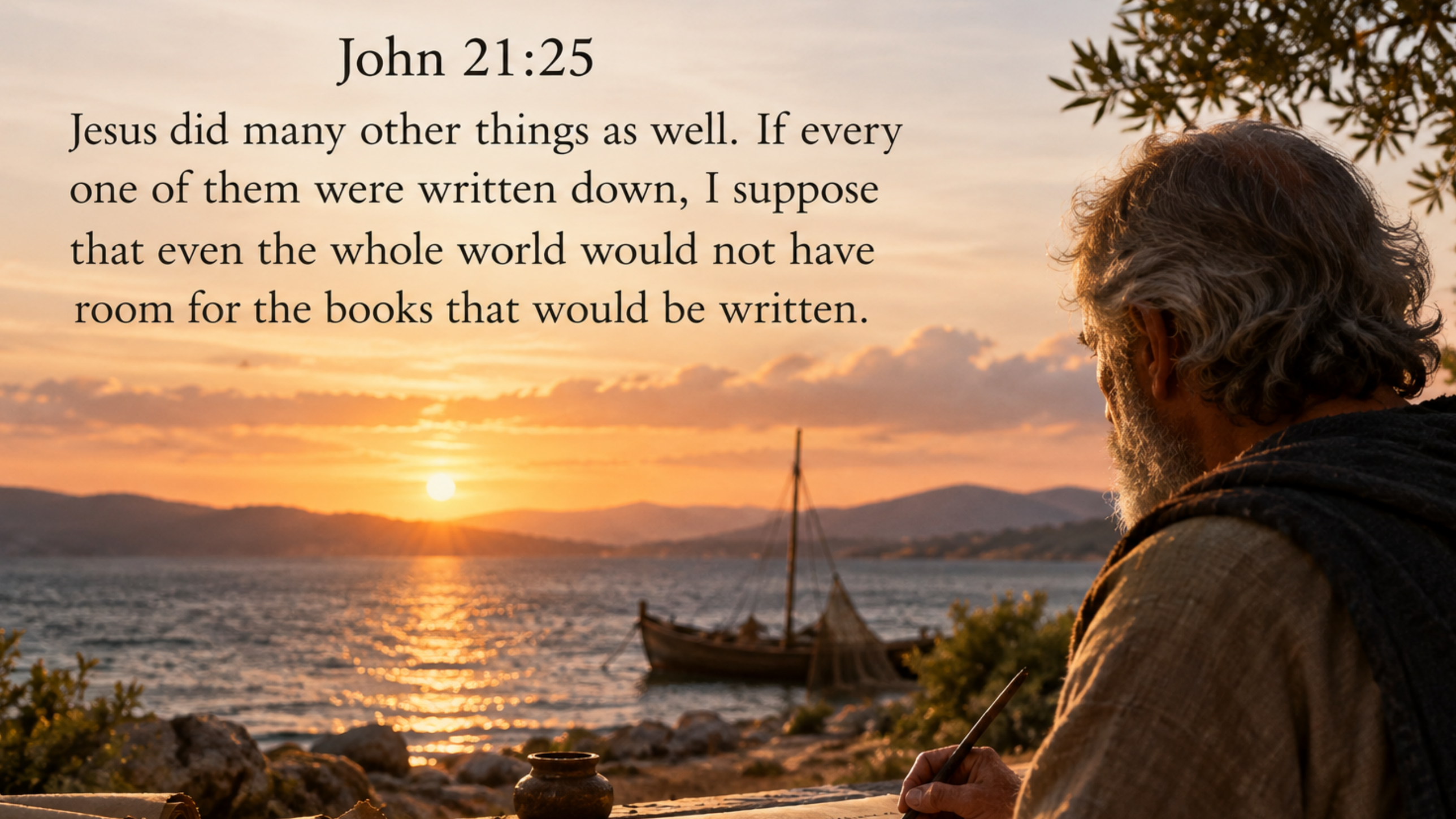
AI in the 6-12 Classroom: Implications and Strategies

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I'm a
TOUR GUIDE
not an EXPERT
EXPLORE
ASK
DISCOVER
LEARN TOGETHER
BUILD WISDOM
FOLLOW HIS LEAD
I may not have all the answers, but I can point you to what is true.
"Your word is a lamp for my feet and a light for my path."
Psalm 119:105
AI
AI can expand what we can explore...
...but it's faith that gives our journey meaning.

John 21:25

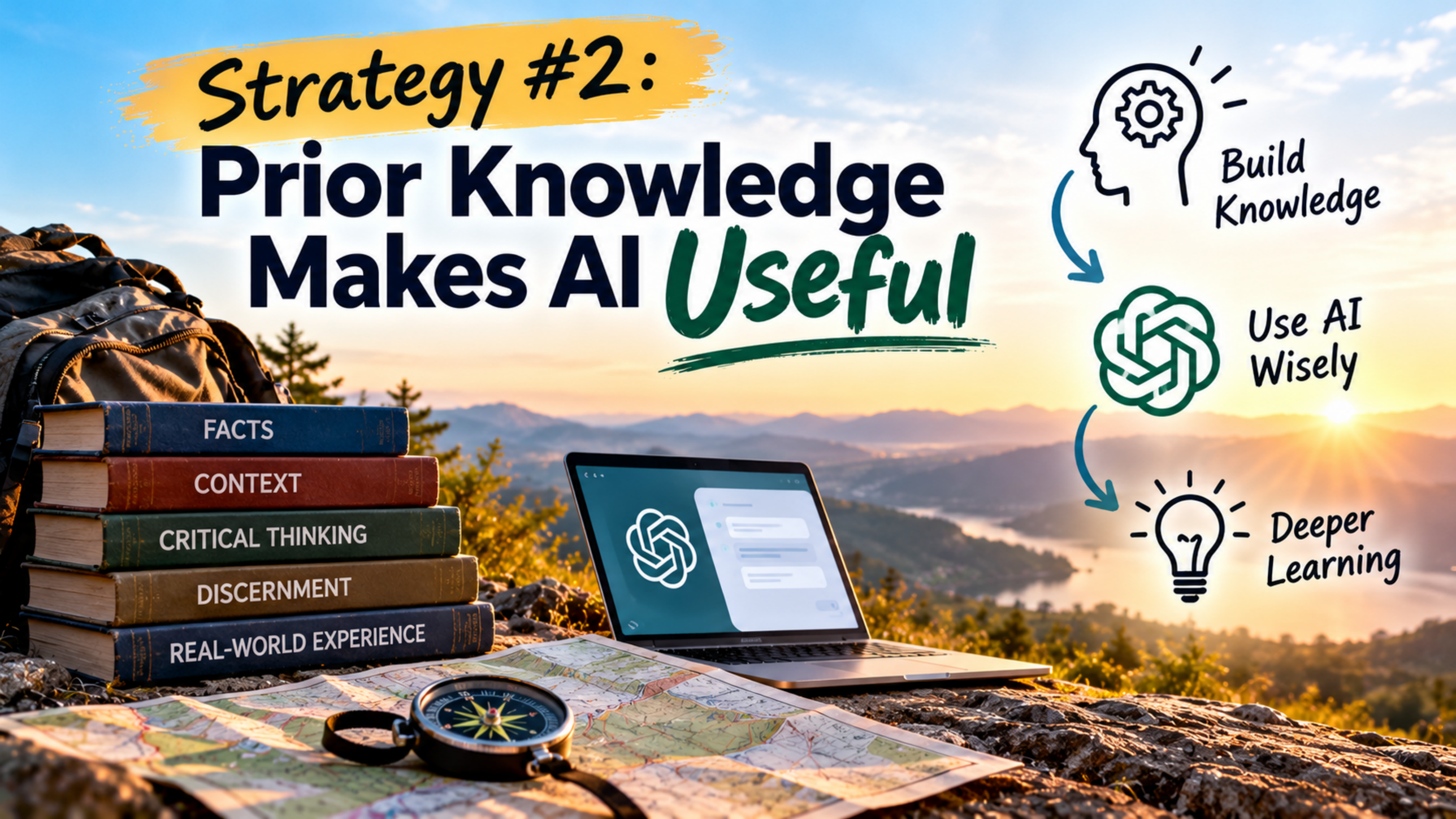
Jesus did many other things as well. If every one of them were written down, I suppose that even the whole world would not have room for the books that would be written.



BE READY TO SHARE!

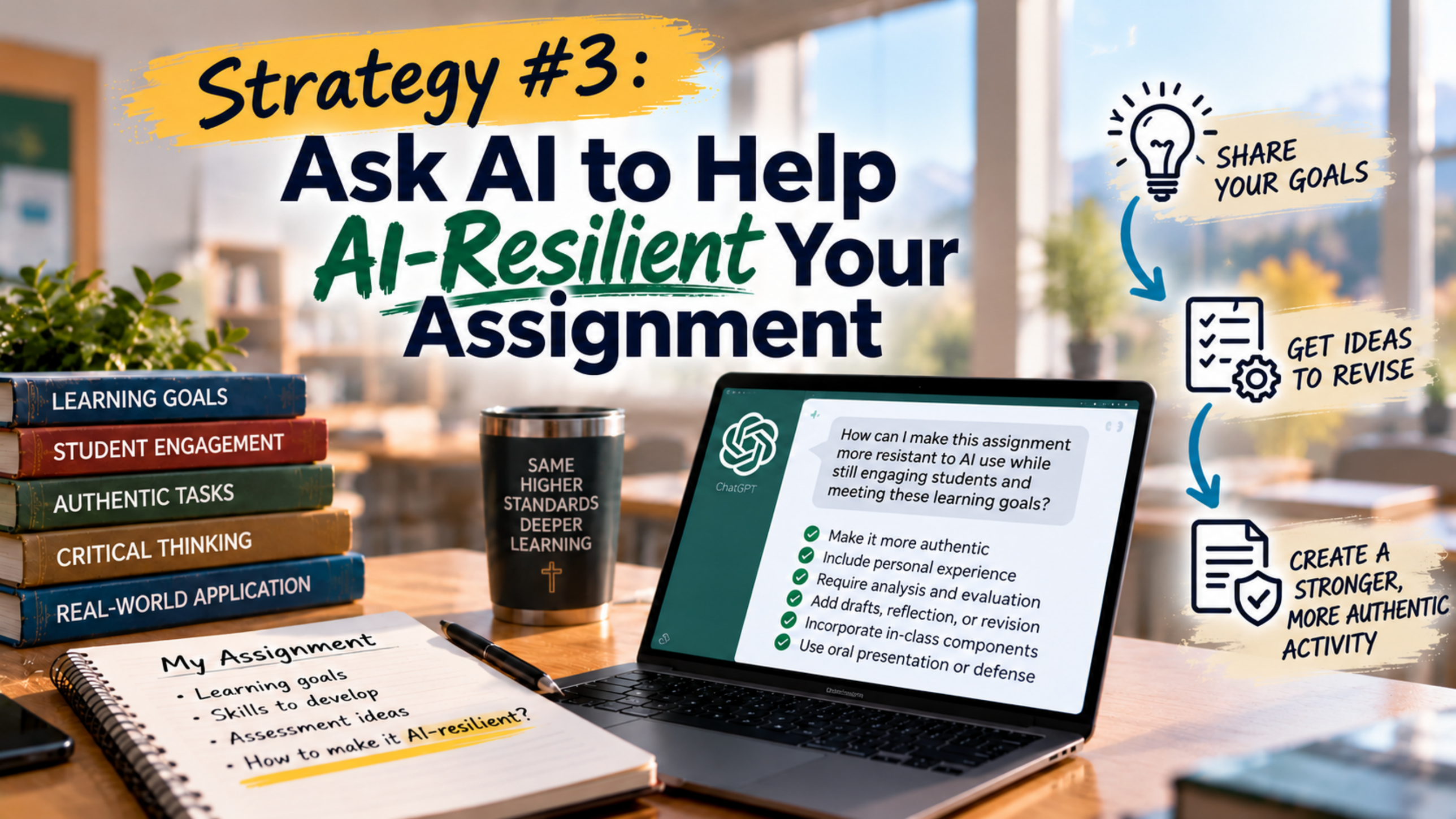
INSTRUCTION


Strategy #1:
AI is Neither a HERO nor a VILLAIN
LEARNING
CREATIVITY
PERSONALIZED LEARNING
GREATER ACCESS
MISINFORMATION AND BIAS
OVERRELIANCE
LOSS OF HUMAN CONNECTION
PRIVACY AND ETHICAL CONCERNS
OPPORTUNITIES
RISKS
DISCERNMENT


Strategy #2:
Prior Knowledge Makes AI Useful
FACTS
CONTEXT
CRITICAL THINKING
DISCERNMENT
REAL-WORLD EXPERIENCE
Build Knowledge
Use AI Wisely
Deeper Learning

Strategy #3:

Ask AI to Help *AI-Resilient* Your Assignment

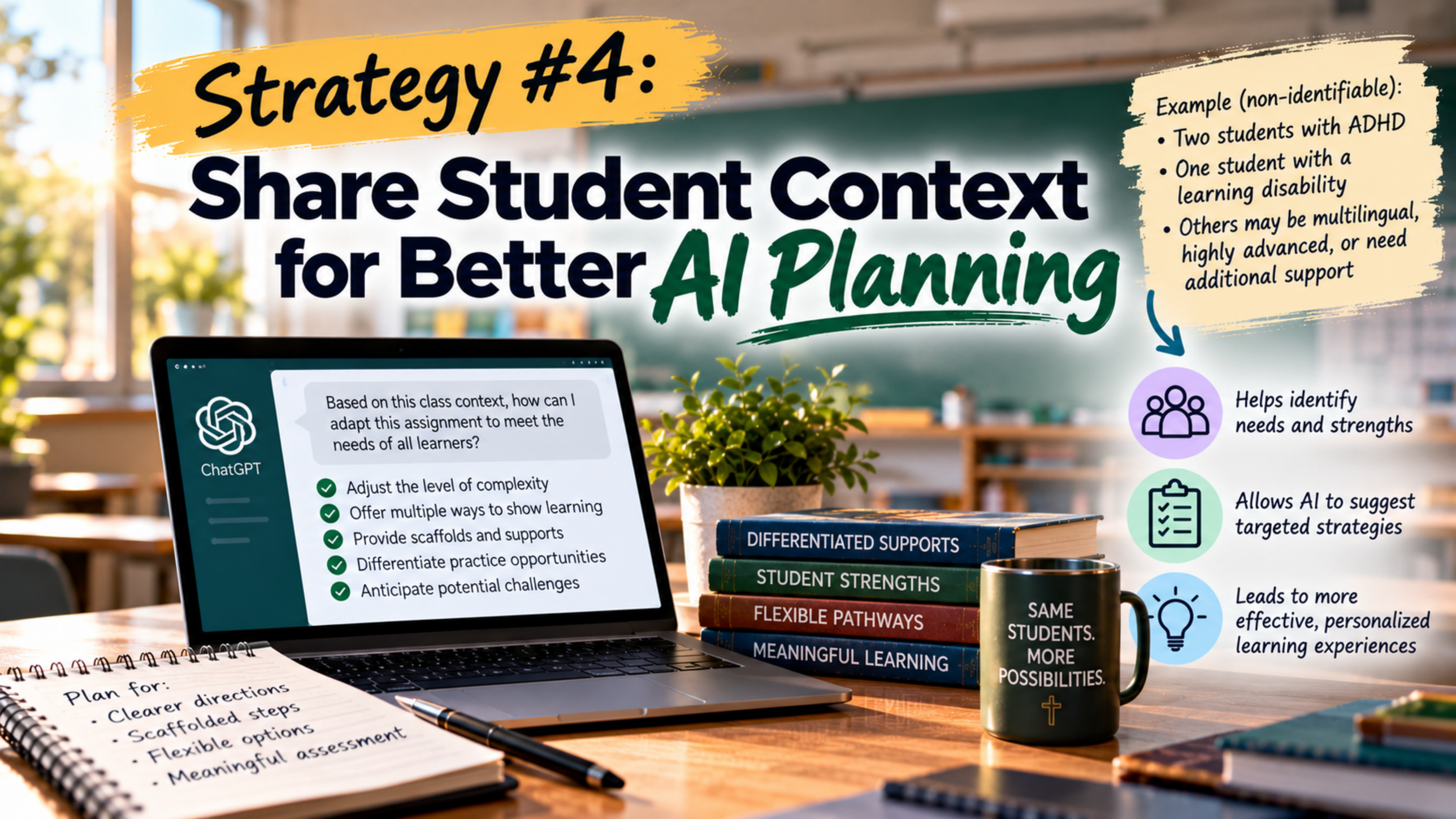


Strategy #4:

Share Student Context for Better AI Planning

Example (non-identifiable):

- Two students with ADHD
- One student with a learning disability
- Others may be multilingual, highly advanced, or need additional support



Helps identify needs and strengths

Allows AI to suggest targeted strategies

Leads to more effective, personalized learning experiences

Strategy #5:

Create Faith Connections to Lessons *with AI*

from the doctrinal perspective of the Lutheran Church—Missouri Synod

- Connect content to Scripture
- Provide an LCMS perspective
- Generate ideas for classroom applications
- Deepen discussion and reflection
- Support learners with meaningful, Christ-centered learning



Strategy #6:

Use AI to Code Tools for Your Classroom

- Create simple classroom tools
- Automate routine tasks
- Design resources for student engagement
- Customize to fit your needs
- No coding experience required

CLASSROOM TOOLS
TIME SAVERS
STUDENT ENGAGEMENT
PRACTICAL APPLICATIONS
REAL-WORLD SKILLS

- [x] Create classroom tools
- [x] Automate routine tasks
- [x] Try simple web apps
- [x] Customize to my needs
- [x] Share with students

ChatGPT

Create a simple web app that randomly assigns students to groups of 3 and lets me exclude specific names.

```python
import random

# students list
students = ["Alex", "Jordan", "Taylor",
            "Morgan", "Casey", "Riley"]

# create groups of 3
random.shuffle(students)
groups = [students[i:i+3] for i in range(0, len(students), 3)]

for i, group in enumerate(groups, 1):
    print(f"Group {i}: {group}")
```

Classroom Group Generator

Student Names (one per line)

Alex
Jordan
Taylor
Morgan
Casey
Riley

Exclude Names (optional)

Riley

Create Groups

Group 1

Alex
Taylor
Casey

Group 2

Jordan
Morgan

Research Question Builder

Your curiosity. Your questions. Your research.

⬇ Save Project File | ↥ Resume from File | ✓ Automatically saved in this browser

Work is saved automatically in this browser when available. To continue on another computer or protect against lost browser data, download a project file after each session. To return, open this HTML application and choose “Resume from File.” Keep your most recent project file in a safe location.

Your role: You write the questions. This tool offers thinking prompts and feedback checklists, but it will not write your research questions for you. Your work is saved in this browser as you type. Use **Save Project File** to continue later; use **Download Final Research Plan (.doc)** to submit your finished work in Canvas.

1. Explore | 2. Driving question | 3. Auxiliary questions | 4. Research plan | 5. Review & export

STEP 1

Explore your curiosity

Begin with a topic you genuinely want to investigate. Your ideas can change as you learn.

Your name (for your Canvas submission)

Mr. Black

What topic interests you?

Shells & Valence Explorer

Pick any element. Its **row** tells you how many electron shells to draw; for the main groups, its **column** tells you how many electrons land in the outermost one.

Orbital builder →

JUMP TO ELEMENT — Symbol, name or number — Cl, chlorine, 17

GROUPS →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
valence	1 e⁻	2 e⁻	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies	3 e⁻	4 e⁻	5 e⁻	6 e⁻	7 e⁻	8 e⁻
ion charge	1+	2+	–	–	–	–	–	–	–	–	–	–	3+	±4	3-	2-	1-	0
Period 1 — 1 shell	1 H Hydr…																	2 He Helium
Period 2 — 2 shells	3 Li Lithium	4 Be Beryl…											5 B Boron	6 C Carbon	7 N Nitro…	8 O Oxygen	9 F Fluor…	10 Ne Neon
Period 3 — 3 shells	11 Na Sodium	12 Mg Mag…											13 Al Alum…	14 Si Silicon	15 P Phos…	16 S Sulfur	17 Cl Chlor…	18 Ar Argon
Period 4 — 4 shells	19 K Pota…	20 Ca Calci…	21 Sc Scan…	22 Ti Titani…	23 V Vana…	24 Cr Chro…	25 Mn Man…	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Ger…	33 As Arsenic	34 Se Sele…	35 Br Brom…	36 Kr Krypton
Period 5 — 5 shells	37 Rb Rubi…	38 Sr Stron…	39 Y Yttrium	40 Zr Zirco…	41 Nb Niobi…	42 Mo Moly…	43 Tc Tech…	44 Ru Ruth…	45 Rh Rhod…	46 Pd Palla…	47 Ag Silver	48 Cd Cad…	49 In Indium	50 Sn Tin	51 Sb Anti…	52 Te Tellur…	53 I Iodine	54 Xe Xenon
Period 6 — 6 shells	55 Cs Cesium	56 Ba Barium	57–71	72 Hf Hafni…	73 Ta Tanta…	74 W Tung…	75 Re Rhen…	76 Os Osmi…	77 Ir Iridium	78 Pt Plati…	79 Au Gold	80 Hg Merc…	81 Tl Thalli…	82 Pb Lead	83 Bi Bism…	84 Po Polo…	85 At Astat…	86 Rn Radon
Period 7 — 7 shells	87 Fr Fran…	88 Ra Radium	89–103	104 Rf Ruth…	105 Db Dubn…	106 Sg Seab…	107 Bh Bohri…	108 Hs Hass…	109 Mt Meitn…	110 Ds Darm…	111 Rg Roen…	112 Cn Cope…	113 Nh Niho…	114 Fl Flero…	115 Mc Mosc…	116 Lv Liver…	117 Ts Tenn…	118 Og Ogan…
Lanthanides	57 La Lant…	58 Ce Cerium	59 Pr Pras…	60 Nd Neod…	61 Pm Prom…	62 Sm Sam…	63 Eu Euro…	64 Gd Gado…	65 Tb Terbi…	66 Dy Dysp…	67 Ho Holm…	68 Er Erbium	69 Tm Thuli…	70 Yb Ytter…	71 Lu Luteti…			
Actinides	89 Ac Actini…	90 Th Thori…	91 Pa Prota…	92 U Urani…	93 Np Nept…	94 Pu Pluto…	95 Am Amer…	96 Cm Curium	97 Bk Berk…	98 Cf Calif…	99 Es Einst…	100 Fm Ferm…	101 Md Men…	102 No Nobe…	103 Lr Lawr…			

s-block · p-block · d-block (transition metals) · f-block (lanthanides & actinides) · outermost shell = valence

Hydrogen

PERIOD 1 · GROUP 1 · S-BLOCK

H

Z = 1

Neutral atom | Common ion



protons 1

electrons 1

1 p⁺ and **1** e⁻ cancel exactly, so the atom is **neutral**.

ROW → SHELLS

Row **1** of the table → **1** shell to draw.

COLUMN → VALENCE ELECTRONS

Group **1** → **1** valence electron in shell n=**1**.

n=1 — VALENCE **1** e⁻

Groups 1 and 2 sit in the s-block: the outer shell holds 1 or 2 electrons, exactly the group number.

ELECTRON CONFIGURATION

Shells & Valence Explorer

Pick any element. Its **row** tells you how many electron shells to draw; for the main groups, its **column** tells you how many electrons land in the outermost one.

Orbital builder →

JUMP TO ELEMENT — Symbol, name or number — Cl, chlorine, 17

GROUPS →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
valence	1 e⁻	2 e⁻	varies	varies	varies	varies	varies	varies	varies	varies	varies	varies	3 e⁻	4 e⁻	5 e⁻	6 e⁻	7 e⁻	8 e⁻
ion charge	1+	2+	–	–	–	–	–	–	–	–	–	–	3+	±4	3–	2–	1–	0
Period 1 1 shell	1 H Hydr…																	2 He Helium
Period 2 2 shells	3 Li Lithium	4 Be Beryl…											5 B Boron	6 C Carbon	7 N Nitro…	8 O Oxygen	9 F Fluor…	10 Ne Neon
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Period 4 4 shells	19 K Pota…	20 Ca Calci…	21 Sc Scan…	22 Ti Titani…	23 V Vana…	24 Cr Chro…	25 Mn Man…	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Ger…	33 As Arsenic	34 Se Sele…	35 Br Brom…	36 Kr Krypton
Period 5 5 shells	37 Rb Rubi…	38 Sr Stron…	39 Y Yttrium	40 Zr Zirco…	41 Nb Niobi…	42 Mo Moly…	43 Tc Tech…	44 Ru Ruth…	45 Rh Rhod…	46 Pd Palla…	47 Ag Silver	48 Cd Cad…	49 In Indium	50 Sn Tin	51 Sb Anti…	52 Te Tellur…	53 I Iodine	54 Xe Xenon
Period 6 6 shells	55 Cs Cesium	56 Ba Barium	57–71	72 Hf Hafni…	73 Ta Tanta…	74 W Tung…	75 Re Rhen…	76 Os Osmi…	77 Ir Iridium	78 Pt Plati…	79 Au Gold	80 Hg Merc…	81 Tl Thalli…	82 Pb Lead	83 Bi Bism…	84 Po Polo…	85 At Astat…	86 Rn Radon
Period 7 7 shells	87 Fr Fran…	88 Ra Radium	89–103	104 Rf Ruth…	105 Db Dubn…	106 Sg Seab…	107 Bh Bohri…	108 Hs Hass…	109 Mt Meitn…	110 Ds Darm…	111 Rg Roen…	112 Cn Cope…	113 Nh Niho…	114 Fl Flero…	115 Mc Mosc…	116 Lv Liver…	117 Ts Tenn…	118 Og Ogan…
Lanthanides	57 La Lant…	58 Ce Cerium	59 Pr Pras…	60 Nd Neod…	61 Pm Prom…	62 Sm Sam…	63 Eu Euro…	64 Gd Gado…	65 Tb Terbi…	66 Dy Dysp…	67 Ho Holm…	68 Er Erbium	69 Tm Thuli…	70 Yb Ytter…	71 Lu Luteti…			
Actinides	89 Ac Actini…	90 Th Thori…	91 Pa Prota…	92 U Urani…	93 Np Nept…	94 Pu Pluto…	95 Am Amer…	96 Cm Curium	97 Bk Berk…	98 Cf Calif…	99 Es Einst…	100 Fm Ferm…	101 Md Men…	102 No Nobe…	103 Lr Lawr…			

s-block · p-block · d-block (tra… · f-block (lanthanides & actinides) · outermost shell = valence

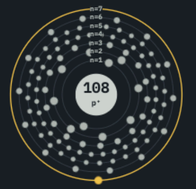
Hassium

PERIOD 7 · GROUP 8 · D-BLOCK

Hs

Z = 108

Neutral atom | Common ion



protons 108

electrons 108

108 p⁺ and **108** e⁻ cancel exactly, so the atom is **neutral**.

ROW → SHELLS

Row **7** of the table → **7** shells to draw.

COLUMN → VALENCE ELECTRONS

Outermost shell holds **2** electrons, filled after the inner d shell — the group number does not predict it here.

n=1		2 e⁻
n=2		8 e⁻
n=3		18 e⁻
n=4		32 e⁻
n=5		32 e⁻
n=6		14 e⁻
n=7	VALENCE	2 e⁻

Transition metals break the tidy pattern. The outer shell keeps 1–2 electrons while the inner d shell fills, so the group number is not the valence count

AI AND ASSESSMENTS

Strategy #7:

AI Has Exposed *Weaknesses* in Some Traditional Assignments

For years, teachers have relied on student-created products as evidence of learning. A completed essay, research paper, presentation, or worksheet generally provided some indication of what students knew and could do.

Generative AI complicates that assumption.

Consider these examples:

Traditional Assignment	What AI Can Now Do
Write a five-paragraph essay	Produce a polished essay in seconds
Summarize a chapter	Generate a summary without the student reading
Create a research presentation	Produce slides, speaker notes, and citations
Answer comprehension questions	Generate plausible responses
Complete a historical analysis	Construct arguments and compare perspectives
Write a personal reflection	Generate convincing first-person reflections



The problem is not necessarily that these assignments are bad. It is that the finished product may no longer provide sufficient evidence of the student's learning.

This leads to an important distinction:

PRODUCT
(Easily Replicated)

A finished assignment may look good but does not always show what the student learned.

PROCESS
(More Meaningful Evidence)

Evidence of thinking, reasoning, decision-making, and application provides a clearer picture of student learning.

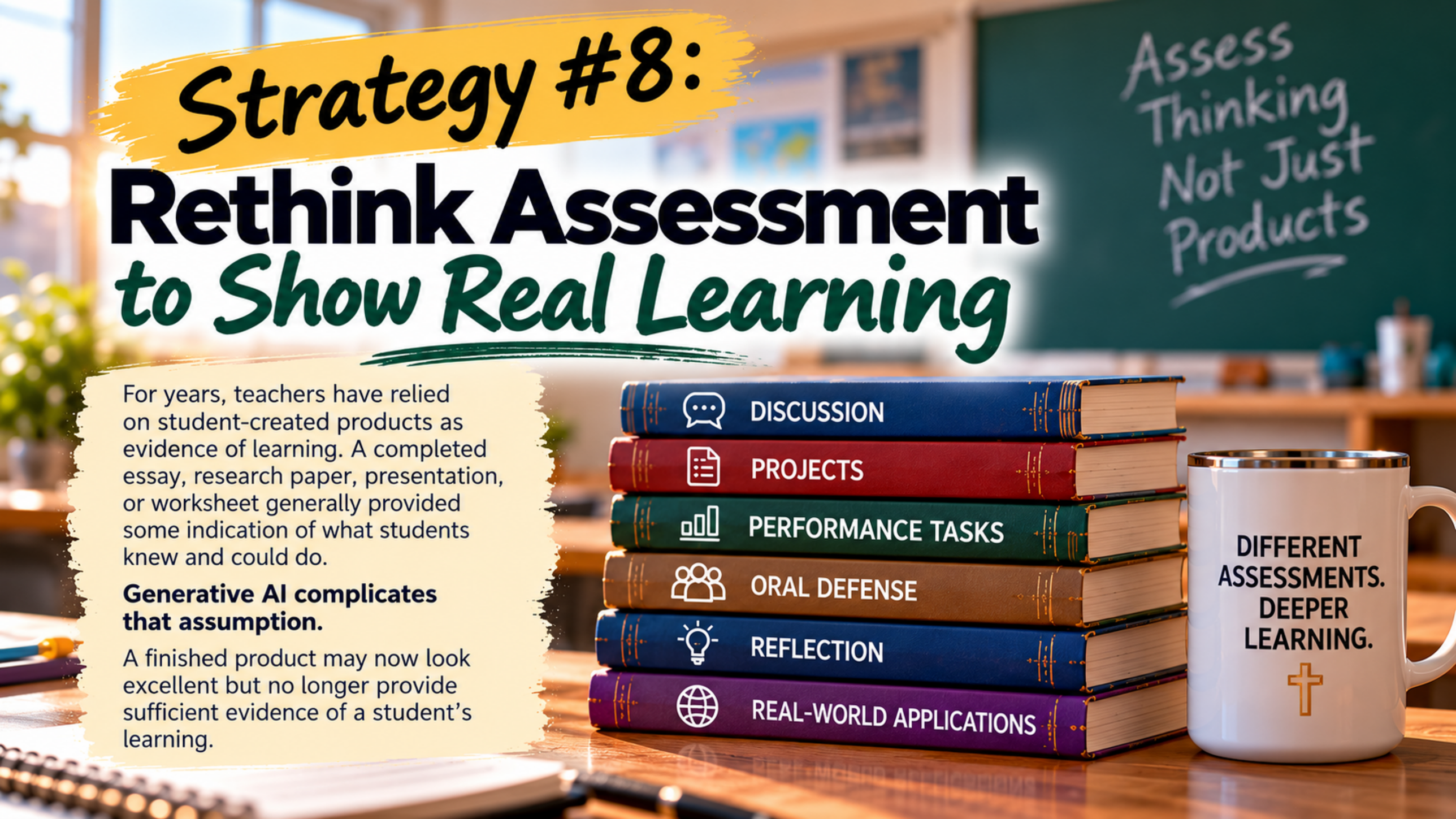
Strategy #8:

Rethink Assessment to Show Real Learning

For years, teachers have relied on student-created products as evidence of learning. A completed essay, research paper, presentation, or worksheet generally provided some indication of what students knew and could do.

Generative AI complicates that assumption.

A finished product may now look excellent but no longer provide sufficient evidence of a student's learning.



Strategy #9:

Move Beyond Traditional Products

Consider These Alternatives

Use a variety of assessments to better understand what students know and can do.



Discussion & Dialogue

Socratic seminars, debates, and structured discussions



Analysis & Annotation

Close reading, source analysis, and text annotations



Application & Problem Solving

Real-world scenarios and case studies



Presentations & Teaching

Teach a concept, explain a process, or present to an audience



Projects & Creation

Design, build, or create something original



Process Documentation

Show your thinking through drafts, logs, or progress updates



Oral Defense

Explain and justify your work in conversation



Reflection

Connect learning to personal growth, goals, and next steps

Strategy #10:

Design AI-Resilient Assessments

Key Considerations

When planning an assessment...

- ☑ Focus on process and thinking
- ☑ Require personal connection
- ☑ Use multiple forms of evidence
- ☑ Build in in-class or oral components
- ☑ Connect to real-world application
- ☑ Make expectations clear

Emphasize Thinking
Ask students to analyze, evaluate, apply, or create — not just recall.

Include a Personal Element
Draw on students' experiences, observations, or local context.

Use Multiple Measures
Combine products, process, and conversation.

Build in Authentic Contexts
Connect to real-world questions and meaningful audiences.

Be Clear About Expectations
Communicate the purpose and criteria so students know what quality looks like.

Strategy #11:

Examples by Subject

Assessment Ideas to Try

These are starting points.
Adapt them to your grade level
and content area.

HISTORY / SOCIAL STUDIES

- Document analysis
- Perspective-taking letters
- Historical debate
- Simulation or role-play
- Policy proposal
- Oral defense

ENGLISH / LANGUAGE ARTS

- Literary analysis with text annotation
- Socratic seminar
- Creative response with reflection
- Revision process portfolio
- Author's note explaining decisions
- Oral presentation

SCIENCE

- Lab design or extension
- Data analysis and interpretation
- Explain a phenomenon to a younger audience
- Design a solution to a real problem
- Lab notebook review
- Oral defense

MATH

- Show your reasoning (step-by-step work)
- Solve and explain a real-world problem
- Create practice problems
- Error analysis
- Math journal or reflection
- Teach a concept to a peer

SPANISH / WORLD LANGUAGE

- Personal narrative or interview
- Real-world conversation or role-play
- Create a multimedia project
- Cultural comparison
- Present to a class audience
- Oral proficiency check

Strategy #12:

What Truly Shows *Authentic Thinking Today?*

Writing or Oral Communication?

In an AI world, how can we best see what students really know and can do?



Writing

- Shows organized thinking
- Allows time for revision and deeper reflection
- Can include research and evidence
- Still valuable when designed thoughtfully (e.g., in-class, annotated, personalized, or process-based)

Oral Communication

- Reveals real-time thinking
- Makes it harder to rely on AI
- Shows depth of understanding through explanation, questioning, and dialogue
- Builds important real-world skills for school, work, and citizenship
- Can be used in discussions, presentations, interviews, and oral defenses



Key Takeaway

Both writing and oral communication can show authentic thinking when designed well. In an AI era, adding more oral components—such as discussions, presentations, and conversations—can provide a clearer window into what students truly know, understand, and can do.

Strategy #13:

Continued Emphasis on *the Soft Skills*

AI can generate information in seconds, but it cannot replace the uniquely human skills that help us think, work, communicate, and serve others.

Communication
Clearly expressing ideas, listening well, and engaging in meaningful dialogue.

Critical Thinking
Analyzing information, asking good questions, considering multiple perspectives, and making sound judgments.

Collaboration
Working effectively with others, contributing to a team, and resolving conflict.

Creativity
Generating original ideas, making connections, and solving real-world problems.

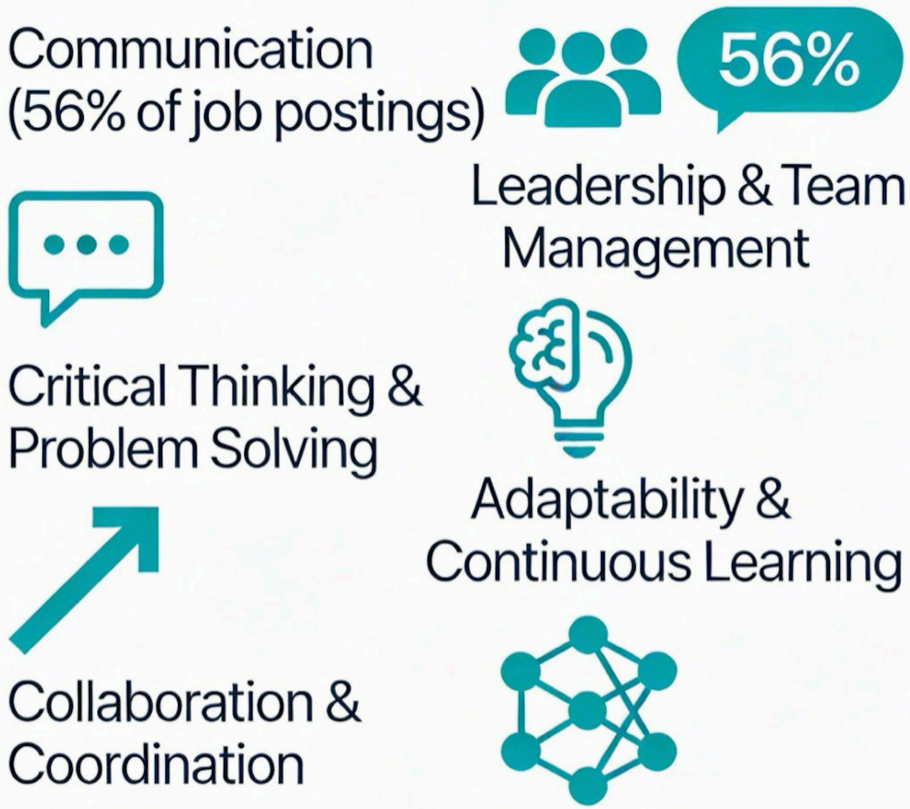
Character
Demonstrating integrity, perseverance, responsibility, and empathy.

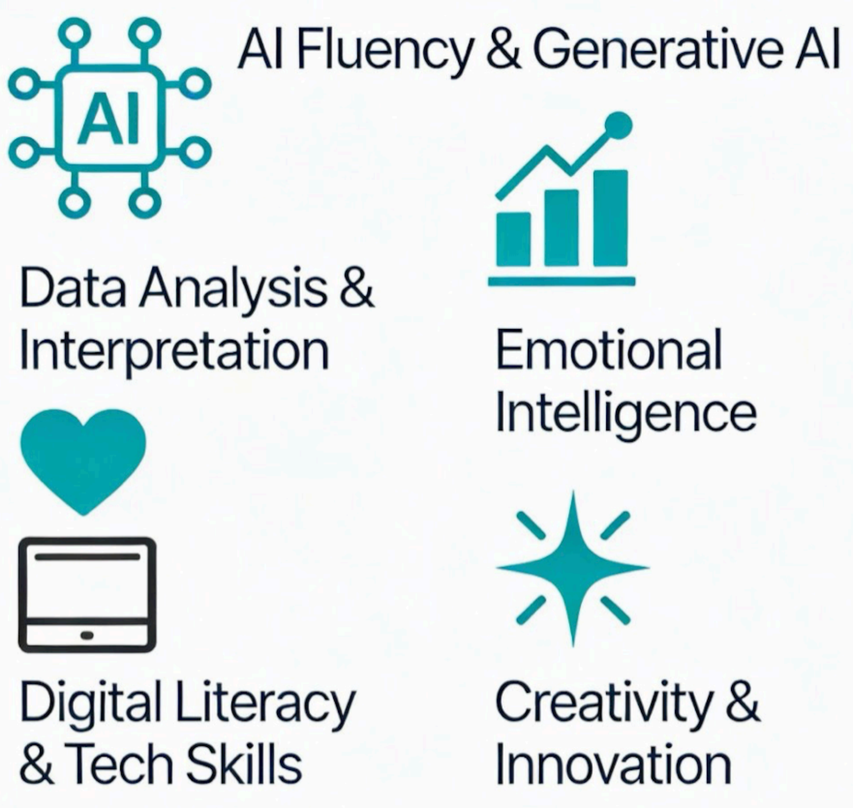
Citizenship
Understanding and serving our communities locally and globally.



These skills still matter in an AI era—perhaps now more than ever.

Most In-Demand Skills for 2026





Based on analysis of 75+ million job postings (LinkedIn, America Succeeds, McKinsey 2025-2026)

Article

AI AND FAITH

Strategy #14:

Honoring God in All We Do, *Including When Using AI*

"Whatever you do, work heartily, as for the Lord and not for men."
Colossians 3:23 (ESV)

Our faith calls us to use all of our tools, including AI, in ways that reflect our love for God and love for our neighbor.

AI is a powerful tool, but it is not neutral. As Lutheran educators, we can model and teach a Christ-centered approach to technology that values truth, integrity, and service.

Seek Truth
Use AI responsibly, verify information, and be committed to accuracy. (John 8:32)

Use It to Serve
Consider how AI can help you love and serve others—classmates, teachers, family, and your community. (Galatians 5:13)

Act with Integrity
Be honest about your use of AI and give proper credit. (Colossians 3:9–10)

Use Wisdom
Discern when to use AI and when to rely on your own knowledge and effort. (Proverbs 2:6)

Grow in Your Vocation
Use AI to develop the gifts God has given you and to become the person He is calling you to be. (1 Corinthians 10:31)

Make a Positive Impact
Use AI in ways that reflect God's love, build up others, and contribute to His world. (Matthew 5:16)







Strategy #15:

We Were Made for *Christian Community*

Not ceding everything to isolation and a frictionless existence.



> "And let us consider how to stir up one another to love and good works, not neglecting to meet together..."
>
> Hebrews 10:24–25 (ESV)

We Are Made for Community

God designed us to live, learn, and grow together in Christian community, not in isolation.

Genesis 2:18

AI Can Support, but Not Replace

AI can be a helpful tool in our work, but it cannot replace the encouragement, challenge, and care we receive from real people.

Learning Happens Together

Discussion, collaboration, accountability, and shared faith build deeper understanding and stronger character.

Proverbs 27:17

Resist a Frictionless Life

AI can make life easier, but a "frictionless" existence can limit growth, resilience, and the opportunity to serve and love others.

Choose People

Use AI in ways that enhance—not replace—relationships with classmates, colleagues, family, and your church community.

Ecclesiastes 4:9–10

Key Takeaway

AI can make many things faster and easier, but it cannot replace what God designed us for—real relationships, shared learning, and life together in Christian community.

Strategy #16:

Amidst Rapid Change, *Jesus Christ is the Same*

Ground yourself in Him.



"Jesus Christ is the same yesterday and today and forever."

Hebrews 13:8 (ESV)

Our world, our schools, and our technologies are changing at an unprecedented pace. In the midst of uncertainty, we can be grounded in the unchanging truth of God's Word and the steady presence of Jesus Christ.

Stay in His Word

Regular time in Scripture anchors our thinking, shapes our perspective, and helps us discern truth in a changing world.

Psalm 119:105

Pray for Wisdom

Ask God for discernment as we navigate new opportunities and challenges, including those related to AI.

James 1:5

Remain in Community

Stay connected with fellow believers who encourage, challenge, and support you.

Hebrews 10:24–25

Keep Your Focus

Use AI and all tools in ways that align with God's purposes and help you serve others.

Colossians 3:23

Key Takeaway

Technology will continue to change, but Jesus Christ is our constant. Ground yourself in His Word, stay connected to His people, and use AI and all tools in ways that honor Him and serve others.

What is one thing you will continue doing, one thing you will change, and one thing you will explore because of AI?

AI in the 6-12 Classroom: Implications and Strategies

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