Montana 12 Environmental / Earth and Space Science

FREE PREVIEW

Full-Year Teacher Planner, Blank Editable Planner & School-Submission Binder

This preview shows the real structure and a genuine sample of the completed planner. The full product contains 9 units, 36 weekly plans and 180 daily plans, plus blank editable versions of every form.

State	Montana
Grade	12 (High)
Subject	Environmental / Earth and Space Science
Course category	Science
Standards family	Science
Framework	Montana Science Content Standards (2016), codified at ARM 10.53 subchapter 8
Issuing agency	Montana Office of Public Instruction
Scope	36 instructional weeks · 180 instructional days · 9 units

This is a statewide standards index, not a local course catalog. Course names, grade placement, electives, and graduation sequences vary by district.

What you get

Folder	Contents
01 START HERE	Read-me, contents, printing and digital instructions, standards verification guide, this preview
02 FILLED FULL YEAR	Completed planner in colour and ink-friendly PDF, plus editable DOCX
03 BLANK EDITABLE	Blank planner in colour, ink-friendly and fillable PDF, plus editable DOCX
04 ASSESSMENTS AND DATA	Baseline observation, quarterly rubrics, anecdotal forms, portfolio checklist
05 SCHOOL SUBMISSION	Submission covers, alignment summary, evidence checklist, observation, reflection, signature page
06 LICENSE AND CREDITS	Terms of use, credits and licences, copyright notice

The pages that follow are reproduced **exactly** as they appear in the full completed planner.

Week 9 — What Moves Air and Water

Unit 3: Weather, Climate and the Difference · Month 3 · Quarter 1 · Semester 1 · Instructional Days 41–45

Essential question	Why does weather happen at all?
Standards	**Weather** -> **ARM 10.53.810(3)(j) Earth and Space Science** — plan and conduct an investigation of the properties of water and its effects on earth materials and surface processes
Learning target	“I can explain weather processes through energy transfer.”
Local dates	_____ (enter your school dates)

Measurable objectives

• Students will obtain, evaluate, and communicate information about the role of energy transfer in wind, precipitation, cloud formation, and front formation.

Success criteria (student-friendly)

• “I explain wind as a consequence of pressure differences.”

• “I explain cloud formation and precipitation.”

• “I explain what happens at a front.”

Academic vocabulary

insolation, convection, pressure gradient, latent heat, condensation, saturation, front, air mass

Materials and technology

• Supplied charts and data

• Notebooks

• Paper and pencil

Differentiation and supports

Support area	This week's plan
Special education / IEP	Reduce group size; pair visual cue cards with all verbal directions; allow gesture or picture response in place of speech; pre-teach the week's target in a 1:1 warm-up.
Section 504	Provide the child's documented accommodations throughout; permit movement breaks and alternative seating at any point in the sequence.
Multilingual learners	Introduce each vocabulary word with an object or image; accept home-language responses; send the vocabulary list home where a translation is available; pair with a peer who shares the home language.
Advanced / extension	Ask the learner to teach the skill to a peer, extend the task, or record a demonstration for the class reference wall.
Intervention / reteach	Reteach the target in a short small group using the same materials; split the day's check for understanding into two smaller steps.
Enrichment	Extend into an open-ended centre or project connected to the essential question.

Assessment and evidence

Weather processes explained through energy transfer.

Family communication

Ask your child what actually makes wind blow.

Day 41 — Uneven Heating Starts Everything

Week 9, Day 1 · Unit 3 · Standards: ARM 10.53.810(3)(j)

Focus	The root cause.
Learning target	“I can explain weather processes through energy transfer.”
Vocabulary in use	insolation, convection, pressure gradient, latent heat, condensation, saturation, front, air mass
Local date	_____

Learning sequence

Connect: energy transfer. Teach: that the whole of weather follows from the planet receiving more energy per unit area at low latitudes than high, which creates temperature differences, which create pressure differences, which drive motion - and that this single chain is worth stating because students otherwise learn weather as a list of phenomena. Try: shared construction of the chain. Apply: students state each link. Reflect: which link is the least obvious?

Check for understanding

Student traces weather back to uneven heating through pressure differences.

Differentiation in the moment

If the learner...	Then...
needs more support	Model the step again with guided support, then fade to a gesture cue.
is ready for more	Invite the learner to demonstrate for a peer or add a second example.
is dysregulated	Pause instruction, move to co-regulation, and return to the target later.

Closure and reflection

Gather the group. Restate the learning target. Ask one learner to demonstrate. Name one specific thing the group did well, then preview tomorrow.

Teacher reflection (fictional example)

Fictional Example — Customize and Verify Before School Submission.

Most learners met the target. Two needed the visual cue repeated during guided practice; I will pre-teach with them tomorrow. The extension held attention longer than planned, so I shortened closure.

Day 42 — Wind Is Air Moving Down a Gradient

Week 9, Day 2 · Unit 3 · Standards: ARM 10.53.810(3)(j)

Focus	The standard's first item.
Learning target	“I can explain weather processes through energy transfer.”
Vocabulary in use	insolation, convection, pressure gradient, latent heat, condensation, saturation, front, air mass
Local date	_____

Learning sequence

Connect: pressure differences. Teach: that wind flows from high to low pressure, that the steeper the gradient the stronger the wind, and that the path is deflected rather than straight because the planet rotates - which is why weather systems circulate rather than simply filling in. Teach that reading a pressure chart is therefore reading a forecast. Try: shared reading of a supplied chart. Apply: students predict wind strength and direction from a second. Reflect: where on the chart is wind strongest?

Check for understanding

Student predicts wind from a pressure chart.

Differentiation in the moment

If the learner...	Then...
needs more support	Model the step again with guided support, then fade to a gesture cue.
is ready for more	Invite the learner to demonstrate for a peer or add a second example.
is dysregulated	Pause instruction, move to co-regulation, and return to the target later.

Closure and reflection

Gather the group. Restate the learning target. Ask one learner to demonstrate. Name one specific thing the group did well, then preview tomorrow.

Teacher reflection (fictional example)

Fictional Example — Customize and Verify Before School Submission.

Most learners met the target. Two needed the visual cue repeated during guided practice; I will pre-teach with them tomorrow. The extension held attention longer than planned, so I shortened closure.

Day 43 — Clouds and the Energy Nobody Sees

Week 9, Day 3 · Unit 3 · Standards: ARM 10.53.810(3)(j)

Focus	Latent heat.
Learning target	“I can explain weather processes through energy transfer.”
Vocabulary in use	insolation, convection, pressure gradient, latent heat, condensation, saturation, front, air mass
Local date	_____

Learning sequence

Connect: energy transfer. Teach: that air cools as it rises and expands, that cooling air reaches saturation and condenses, and that CONDENSATION RELEASES THE ENERGY ABSORBED IN EVAPORATION - which warms the surrounding air and drives further rise, so a cloud can power its own growth. Teach that latent heat is the hidden term in almost every weather explanation. Try: shared reasoning. Apply: students explain cloud growth using latent heat. Reflect: where did the energy come from originally?

Check for understanding

Student explains cloud development using latent heat release.

Differentiation in the moment

If the learner...	Then...
needs more support	Model the step again with guided support, then fade to a gesture cue.
is ready for more	Invite the learner to demonstrate for a peer or add a second example.
is dysregulated	Pause instruction, move to co-regulation, and return to the target later.

Closure and reflection

Gather the group. Restate the learning target. Ask one learner to demonstrate. Name one specific thing the group did well, then preview tomorrow.

Teacher reflection (fictional example)

Fictional Example — Customize and Verify Before School Submission.

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Day 44 — Precipitation

Week 9, Day 4 · Unit 3 · Standards: ARM 10.53.810(3)(j)

Focus	From droplet to rain.
Learning target	“I can explain weather processes through energy transfer.”
Vocabulary in use	insolation, convection, pressure gradient, latent heat, condensation, saturation, front, air mass
Local date	_____

Learning sequence

Connect: condensation. Teach: that condensation alone does not produce rain - droplets must grow far larger to fall - and the processes that achieve it, so that precipitation is a separate question from cloud formation. Teach why this matters: cloudy is not the same as raining, which students assume. Try: shared reasoning. Apply: students explain why a cloud may not precipitate. Reflect: what determines whether it does?

Check for understanding

Student distinguishes cloud formation from precipitation.

Differentiation in the moment

If the learner...	Then...
needs more support	Model the step again with guided support, then fade to a gesture cue.
is ready for more	Invite the learner to demonstrate for a peer or add a second example.
is dysregulated	Pause instruction, move to co-regulation, and return to the target later.

Closure and reflection

Gather the group. Restate the learning target. Ask one learner to demonstrate. Name one specific thing the group did well, then preview tomorrow.

Teacher reflection (fictional example)

Fictional Example — Customize and Verify Before School Submission.

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Day 45 — Fronts

Week 9, Day 5 · Unit 3 · Standards: ARM 10.53.810(3)(j)

Focus	The standard's last item.
Learning target	“I can explain weather processes through energy transfer.”
Vocabulary in use	insolation, convection, pressure gradient, latent heat, condensation, saturation, front, air mass
Local date	_____

Learning sequence

Connect: air masses with different properties. Teach: that a front is a boundary between air masses, that the weather it produces depends on which is advancing and how steeply it rises, and that the characteristic sequence of cloud and precipitation at each type follows from the geometry rather than being a list to memorise. Try: shared reasoning from a supplied cross-section. Apply: students predict the weather sequence at two fronts. Reflect: which produced the more intense weather, and why?

Check for understanding

Student predicts a weather sequence from a front's geometry.

Differentiation in the moment

If the learner...	Then...
needs more support	Model the step again with guided support, then fade to a gesture cue.
is ready for more	Invite the learner to demonstrate for a peer or add a second example.
is dysregulated	Pause instruction, move to co-regulation, and return to the target later.

Closure and reflection

Gather the group. Restate the learning target. Ask one learner to demonstrate. Name one specific thing the group did well, then preview tomorrow.

Teacher reflection (fictional example)

Fictional Example — Customize and Verify Before School Submission.

Most learners met the target. Two needed the visual cue repeated during guided practice; I will pre-teach with them tomorrow. The extension held attention longer than planned, so I shortened closure.

Important before you buy

- This is a **digital download**. Nothing is shipped.
- The planner is **calendar-neutral**: Month 1–9, Week 1–36, Day 1–180, so it fits any school calendar. You add your own dates.
- Standards were transcribed from the official source.
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This is a statewide standards index, not a local course catalog. Course names, grade placement, electives, and graduation sequences vary by district.

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Source citation

Montana Office of Public Instruction. Montana Science Content Standards (2016), codified at ARM 10.53 subchapter 8. Statements are transcribed from the MONTANA SCIENCE CONTENT STANDARDS, whose own cover reads "Adopted September 16, 2016 by the Montana Board of Public Education". THAT DOCUMENT PRINTS NO CODES. Each grade is a set of discipline headings -- physical science, life science, earth and space science -- followed by unnumbered bullets, so there is nothing in it that can be printed in a code column. The same standards are codified in the ADMINISTRATIVE RULES OF MONTANA, CHAPTER 10.53 SUBCHAPTER 8, one rule per grade, and the rule's structure is exactly the document's: a numbered subsection per discipline heading, a lettered item per bullet, same order and same count. THE ARM SUBSECTION IS REGISTERED AS THE CODE. This is an existing official citation rather than an invented identifier, and it is the citation a Montana reviewer can actually look up; the alternative would have been to ship science products with no codes at all. Bullets are separated in the PDF by a Symbol-font character in the Unicode Private Use Area rather than by a literal dot; splitting on the indent instead merges a whole discipline into one run, and splitting per line fragments every standard mid-sentence, so the glyph is what the transcription splits on and the item count is checked against the counts the document's headings imply. THIS IS THE ONLY ROW IN THIS SERIES THAT COVERS EARTH AND SPACE SCIENCE AT HIGH SCHOOL, AND IT REGISTERS ALL EIGHTEEN OF IT. This state writes one science rule for the whole of grades 9-12, ARM 10.53.810, in three disciplines -- physical science, life science, and earth and space science -- and subsection (3) is the earth and space one. No other high school planner in this series touches it: biology takes life science, physics and chemistry take physical science, and this row is where the eighteen earth and space standards are met, from the life span of the sun and the Big Bang through plate tectonics, the water and carbon cycles, climate modelling and natural hazards to resource management. A SCHOOL PLANNING ITS THREE REQUIRED SCIENCE UNITS SHOULD KNOW THAT. Seven life science standards are registered alongside them for the environmental half -- ecosystem matter and energy, carrying capacity and biodiversity, ecosystem stability, human impact on biodiversity, and environmental change

-- and TWO OF THOSE CARRY AMERICAN INDIAN CONTENT INSIDE THE STANDARD: (2)(k) requires analysing scientific concepts used by American Indians to maintain healthy relationships with environmental resources, and (2)(t) requires investigating and explaining American Indian perspectives on changes in environmental conditions. So does (3)(q), on the sustainability of human populations. That is Indian Education for All inside the science requirement. Retrieved 2026-07-27 from https://opifiles.mt.gov/Portals/182/Page%20Files/K-12%20Content%20Standards%20%26%20Revision/Science/Montana-Science-Content-Standards-2016.pdf