



Cross-curricular educational projects

5e and 4e classes • Analyse, debate, decide

Äerdschëff asbl • Sep 12, 2026

At a glance

How can we move from an observation to a reasoned decision? These five projects engage pupils with data, technical choices and their social consequences. They build a method, compare options and make their trade-offs open to discussion. Each proposal draws on the original document and sets out the sequence, outputs and assessment criteria.



What pupils will learn

- Plan an observation, keep a record and explain what conclusions it supports.
- Connect knowledge from several subjects to a concrete situation.
- Discuss a proposal and revise it in response to results and objections.

Scope and status

Proposals for 5e and 4e classes, to be adapted to the stream and prior learning. This grouping is educational: 5e belongs to lower secondary education and 4e to upper secondary education. Alignment with the curricula must be established by the teaching team; it is not certified here.

Reading guide

- Understand the approach and choose a project
- Put the five proposals into practice
- Organise follow-up and find the resources

The suggested teaching time is shared between subjects. Each project can be run separately. Results will be documented after the projects have been tried out.



1. Understand the approach

1.1 An investigation rooted in everyday life

School life involves choices about energy, food, space and access to resources. Pupils can analyse one aspect by bringing together measurements and viewpoints. The central question becomes: what decisions does the available information actually support, and for whom?

1.2 Sources and progression

The original PDF brings together five projects and their timeframes. This version makes methods, uncertainties and trade-off criteria more explicit. In 5e, comparison remains guided; in 4e, pupils document their assumptions and respond to an objection. Subjects, languages and assessment should be specified using the class curricula on eSchoolbooks.

1.3 Choose a project

Project	Learning focus	Duration and requirements
Energy audit	Compare options and defend a recommendation.	One term; data and technical staff.
Sustainable food from garden to plate	Connect growing, consumption and collective trade-offs.	One year, around 50 h; garden and catering.
Biodiversity at school	Map observations, justify a habitat improvement and plan its monitoring.	One term; site and maintenance.
Climate change	Connect data, mechanisms and decisions at school level.	One year; scientific source materials and coordination.
Social justice and ecological transformation	Discuss how benefits and efforts are distributed.	One term; source materials and a space for deliberation.

Connecting evidence and decisions

The project becomes meaningful when pupils can connect a question, a record and a decision. A carefully prepared presentation makes this reasoning visible, including when a hypothesis is not confirmed.



2. Take action

The following five proposals set out the learning, sequence and expected records. They are followed by a shared framework for organisation and follow-up.

2.1 School energy audit

Responsible consumption • One term • Suggested teaching time: 18 h.

What measure could reduce energy consumption at school, what effects and constraints would it involve, and how confident could we be in the results?

Objectives and subjects

Design an investigation, compare scenarios and defend a recommendation. Physics and chemistry explain power, energy, transformations and emissions; mathematics covers orders of magnitude and variations; geography examines where resources come from and what local alternatives are available. This is an educational audit with a limited scope.

Suggested sequence

1. Frame the investigation (3 h). Choose an area of energy use together with the technical staff: lighting, appliances or heating. Define the period, accessible data, question and limitations. Distinguish measurements, estimates and missing data.
2. Produce a comparable baseline (5 h). Record meter readings or power and durations under supervision. Note occupancy, weather and changes in use. Calculate kWh, draw graphs and discuss differences; retain units and method.
3. Compare options (5 h). Examine maintaining the current situation, reducing demand and improving equipment, together with their energy context. Compare estimated savings, indicative cost, comfort, maintenance and the people affected. Test the result's sensitivity to an assumption.
4. Test and present (5 h). Have a feasible test approved, monitor its effects and write a recommendation. Organise an exhibition and presentations using graphs and posters; answer questions from the school community and families.

Outputs and assessment

Expected outputs: annotated data, method, comparison of options and a recommendation note. Assess the W/kWh distinction, consistent calculations, transparent assumptions and response to an objection. Each pupil explains what would strengthen or change the conclusion. Do not present a simple estimate as a measured saving.

Requirements and adaptations

The school authorises readings and retains control of the installations. Where data are unavailable, use a clearly identified educational dataset. In 5e, provide scenarios; in 4e, ask



pupils to develop and test a hypothesis. An investigation at Äerdschëff can illuminate trade-offs between need, technology, resources and maintenance.

2.2 Sustainable food from garden to plate

Food and collective choices · One school year · Suggested framework: around 50 h over 30 weeks.

How can a shared food practice evolve by considering health, resources, cost, enjoyment and accessibility together?

Objectives and subjects

Monitor a crop, trace food from production to consumption and justify choices. Biology examines growth, nutrition and the effects of production methods; French organises research, writing and presentation; Vie et société (Life and Society) examines access conditions and trade-offs. Calculations and graphs are integrated into the investigation.

Suggested sequence

1. Define the question (5 h). Conduct an anonymous, optional survey of catering practices, or use fictional situations. Choose a collective question without requesting sensitive family data.
2. Grow and document (20 h spread over time). Set up a vegetable garden or herb planters; plan sowing, maintenance and observations. Keep a journal of conditions, resources used, harvests and difficulties. Harvests are not guaranteed.
3. Compare and measure (10 h). Study seasonality, production, transport and storage. Weigh canteen leftovers using a shared protocol and relate quantities to the number of meals. Distance alone does not constitute a carbon footprint.
4. Develop proposals (10 h). Write a recipe collection and compare two menus: composition, cost, availability, documented impacts and acceptability. If using a carbon calculation, state its basis, unit, scope and limitations.
5. Share and review (5 h). Organise a food day with tastings, stands and infographics. Present the collection to families, discuss feedback and propose a feasible next step.

Outputs and assessment

Assess the growing journal, food-waste data, recipes and argument: explicit method, consistent calculations, quality of writing and comparison of criteria. An individual note distinguishes learning, contribution and an unresolved trade-off. The review also covers the organisation of maintenance.

Requirements and adaptations

Plan a site or planters, watering, holiday maintenance, canteen coordination, hygiene and allergies. A version without growing relies on a documented investigation. In 4e, explore a



trade-off between criteria in greater depth. Äerdschëff can contribute work on resources and the organisation of a shared meal.

2.3 Biodiversity at school: discover and act

Observe, map, improve habitats · One term · Suggested teaching time: 18 h.

What change to the school grounds could meet the needs of living things, and which observations would allow us to monitor its effects?

Objectives and subjects

Build a site-specific inventory, map observations and justify an intervention. Biology studies habitats and ecological relationships; geography analyses uses and spatial organisation; computing structures data and the map. The aim is not to produce an exhaustive inventory in one term.

Suggested sequence

1. Frame and observe (4 h). Choose several small areas and a shared protocol: route, duration and groups of organisms. Record conditions and observation effort. Identify using guides while retaining uncertainty.
2. Analyse and map (4 h). Organise records in a spreadsheet, then on a paper or digital map. Connect observations, habitats and uses. Distinguish not observing a species from its absence; do not disclose sensitive locations.
3. Compare, then improve habitats (6 h). Examine several options: different maintenance, local vegetation, a refuge or an observation point. Justify a choice according to identified needs, resources and maintenance. An insect hotel remains an option, never an automatic answer.
4. Present and prepare next steps (4 h). Produce a guided visit and a booklet or annotated map. Repeat a comparable survey if the timetable allows; propose later monitoring with a named person responsible.

Outputs and assessment

The group presents its protocol, records, map and habitat-improvement choice. Assess traceability, care in identification, map readability and ecological justification. Each pupil discusses a bias: season, weather, duration or observation skills. A short-term change is not enough to attribute an effect to the intervention.

Requirements and adaptations

Provide authorised access, observation equipment and agreement on maintenance. Adapt routes and share photographic observations where needed. In 5e, guide the mapping; in 4e, compare areas or methods. At Äerdschëff, extend the analysis of relationships between design, uses and habitats.



2.4 Climate change: understand in order to act

Data, mechanisms and decisions · One school year · Suggested teaching time: 30 h.

How can climate knowledge inform decisions at school level without confusing measurement, model and prediction?

Objectives and subjects

Explain the main mechanisms of warming, read a long time series and distinguish mitigation from adaptation. Physics and chemistry explore radiation, energy and greenhouse gases; mathematics analyses series; geography connects impacts, territories and possible responses.

Suggested sequence

1. Build an understanding of mechanisms (6 h). Use diagrams, scientific resources and focused experiments on energy exchange. Explain what each setup represents and its limitations; a heated box alone does not reproduce Earth's climate.
2. Read and discuss data (6 h). Compare temperature and CO₂ series from identified sources. Examine periods, units, anomaly baselines and trends. Distinguish weather from climate, and correlation from causal explanation.
3. Connect scales (6 h). Study impact maps and a local issue. Estimate emissions for a school activity that can be documented, rather than producing a complete carbon footprint. Retain sources, assumptions and missing data.
4. Compare responses (6 h). Propose one mitigation measure and one adaptation measure. Examine expected effectiveness, cost, maintenance, accessibility and possible unintended effects. Define what would allow their implementation to be assessed.
5. Open choices to discussion (6 h). Prepare a climate forum with stands and short presentations for pupils, families and invited local organisations and community representatives. Present established knowledge, the investigation's limitations and the proposed trade-offs.

Outputs and assessment

Expected outputs: explanatory diagram, sourced graphs, documented estimate and comparison of responses. Assess scientific accuracy, critical reading of data, consistent assumptions and argumentation. An individual justification must connect a decision to its supporting evidence and a limitation.

Requirements and adaptations

Choose accessible data and supervised activities in advance. In 5e, provide extracts and formulae; in 4e, test an assumption and discuss a distributional effect. An investigation at Äerdschëff can connect the building to questions of energy, water, use and maintenance.



2.5 Social justice and ecological transformation

Deliberation and creativity • One term • Suggested teaching time: 16 h.

How can we assess an ecological measure when its benefits, costs and opportunities for action differ from person to person?

Objectives and subjects

Analyse an inequality, bring sources together and defend a proposal open to revision. *Vie et société* (Life and Society) explores justice, rights, responsibilities and solidarity; French develops investigation and argumentation; visual arts makes an issue visible through a poster, comic or installation.

Suggested sequence

1. Examine situations (3 h). Compare documented cases across several territories: exposure to heat, access to food of one's choice or the cost of a change in use. Identify differences between groups and within each territory.
2. Investigate and map the people and organisations involved (4 h). Assemble a short dossier combining data and identified viewpoints. For one measure, specify who decides, who benefits, who bears a cost and who finds participation difficult.
3. Deliberate and create (5 h). Compare two options using explicit criteria: ecological effect, accessibility, distribution of effort and feasibility. Write an article or a case for action, then design a work that expresses the reasoning without caricaturing people.
4. Present and revise (4 h). Organise an exhibition opening with discussion for the school community and invited associations. Explain sources and visual choices. Gather an objection, then write an amended proposal.

Outputs and assessment

The dossier combines an analysis of the people and organisations involved, argument, creative work and critical reflection. Assess source quality, the distinction between fact and value, consideration of the people affected and the response to an objection. The grade concerns this learning, not the opinion defended.

Requirements and adaptations

Prepare accessible source materials and discussion rules. Do not expose pupils' personal financial circumstances; use clearly labelled fictional cases where needed. In 5e, guide the criteria; in 4e, examine a contested trade-off. At Äerdschëff, extend the discussion to needs, technologies and access to resources.



Organising the projects

Stage	Expected outcome	Responsibility / deadline
Prepare	Question, subjects, timetable, access and criteria defined.	Teaching team and partners; before the start.
Implement	Investigation logbook, interim review and adjusted proposal.	Pupil groups, supported by the team; throughout the sessions.
Review	Presentation, individual feedback and decision on next steps.	Pupils and teaching team; at the end, then agreed follow-up.

Resources and requirements

Plan for two teachers, coordination time and one investigation logbook per group. Share and rotate roles: observe, record, check, present. Use shared equipment and provide accessible paper or digital materials.

An Äerdschëff contribution can be developed with the team: an investigation visit, workshop, discussion of choices or support for the presentation. Content, availability, travel, supervision and budget remain to be agreed; this document does not confirm a booking.

Reviewing progress

- Before the project, collect an initial individual answer to the question. At the halfway point, comment on one record per group and identify what still needs checking.
- Assess the knowledge used, quality of records, reasoning and cooperation. Do not grade agreement with an opinion or families' private practices.
- At the presentation, ask each pupil what they learned, what they contributed and one limitation of their work. The teaching team compares these answers with the starting point and decides what follows.



3. References and resources

Curricula and scientific resources

[MENJE • Learning in secondary education \(in French\)](#)

Entry point for the curricula, teaching languages and assessment arrangements specific to each class.

[ADEME • Sustainable food: challenges and priorities \(in French\)](#)

Reference points for examining production, transport, consumption and waste together.

[ADEME • Food carbon-impact calculator \(in French\)](#)

A comparison tool to be used with explicit units, scope and limitations; a carbon value does not describe all the effects of a food.

[IPCC • AR6 Synthesis Report: Summary for Policymakers](#)

Scientific reference for preparing sessions on the mechanisms, risks, inequalities and responses to climate change.