

## Appendix C

### Interdisciplinary Course Outline

#### **Course Overview (for a locally developed course) Agribusiness, Grade 11 Open**

School: Delhi District Secondary School  
Department: Interdisciplinary (Business and Science)  
District: Grand Erie District School Board  
Course Title: Agribusiness Grade: 11  
Course Type: Open  
Development Date: December 1999  
Ministry Course Code: ISB 30 (suggested)  
Credit Value: 2.0  
Secondary Policy Document: Locally Developed Course Guidelines 1999

#### **Description**

This grade 11, two credit interdisciplinary course enables students to develop connections and foundation of skills and knowledge present in business of agriculture and subject disciplines and subdisciplines of science and business. Students conduct investigations into practical problems and issues related to agriculture and business activities. A variety of hands-on activities and simulations assist students to acquire key concepts and issues surrounding the business of farming. Topics covered in the course include soil management, crop production, pesticide use, record keeping, marketing, accounting, agribusiness environment, and career opportunities. Students will use different reporting strategies to facilitate the development of communications skills. From time to time experts with specialities in agribusiness will meet with students to discuss relevance to the field and career opportunities. This course will serve as an introduction and showcase for the world of work and further post-secondary studies.

#### **Rationale**

The students and families of Delhi the surrounding area are strongly connected with the agricultural ventures. Many of our students graduate from high school with plans to work on family or other farms in our area. While some of these students take agriculture-related courses at university or college, many graduate directly to the world of work. An interdisciplinary course in agriculture related studies would be a benefit to students with each of these goals. Those who go directly to farm employment would have a degree of theoretical and practical knowledge to take to the field; students whose plans include post secondary training in agriculture would have the advantage of familiarity with the theories and applications of agriculture-related studies prior to enrolment at university or college.

## **Science Unit #1: introduction To The Agri-Food System In Ontario**

### **Overall Expectations**

By the end of this course, students will.

- demonstrate an understanding of the many facets of Ontario's Agri-Food System and the many inter-relationships;
- evaluate and give specific examples of how advances in the Agri-Food System has improved agricultural practices;
- identify useful resources for those involved in agriculture.
- investigate possible career and post-secondary opportunities in the Agri-Food Industry.

### **Specific Expectations**

By the end of this course, students will:

- compare historically past agricultural practices with modern day and note the role that scientific research has played in the many new advances.
- Identify the main areas of study and the impact that these areas have on modern agricultural practice.
- report on a current issues or discoveries in agricultural science.
- identify useful resources for farmers and others involved in the agriculture industry (e.g., government agencies, Internet etc.)
- select and integrate information from various sources including electronic and print resources to answer the questions chosen.
- select than use appropriate numeric, symbolic, graphic, and linguistic modes of representation to communicate agricultural ideas, plans, results and conclusions.
- analyze data and information and evaluate evidence and sources of information, identifying flaws such as errors and bias and misconceptions.

### **NOTES:**

1. An agricultural field trip would reinforce many of these concepts.

Possible trips:

- a) The Canadian Outdoor Farm Show, (Woodstock ON)
- b) Ridgeway College: Red Carpet Day or Review Day
- c) The Delhi Research Station
- d) The Delhi Tobacco Auction Exchange
- e) The Delhi Tobacco Museum

2. Establish a basis of common terminology.

The terms acre and hectare are still used.

A bushel of corn is different than a bushel of soybeans

Video:

The Back-Breaking Leaf -NFB 1961 (A local historical film about the Tobacco Industry)

## **Science Unit #2: Soil Management**

### **Overall Expectations**

By the end of this course, students will.

- Investigate the origin and classification of soils.
- Investigate factors that had created the sand plain situation of the Delhi area.
- Describe soil texture and structure through analytical means.
- Identify the relationships between water and soil in our environment and the recommended land stewardship practices for conserving these resources.
- Demonstrate an understanding of soil fertility maintenance.
- Identify common tillage practices.

### **Specific Expectations**

By the end of this course, Students will.

- describe the characteristics of air, water and soil as they pertain to agriculture;
- determine the characteristics various soils textures through analysis.
- illustrate the cycling of matter through biotic and abiotic components by tracking nitrogen;
- discuss some of the major threats to water quality;
- describe types of soil water and their relationship to plant growth;
- Cite examples of enormous erosion problems worldwide and identify important local soil and water conservation practices;
- list the micronutrients and macronutrients require by plants;
- Identify plant nutrient deficiency signs.
- determine appropriate amendments for soil. (e.g. fundamentals of fertilizing and liming materials);
- analyze data and information and evaluate evidence and sources of information, identifying flaws such as errors and bias;
- use a broad range of tools and techniques safely, accurately, and effectively to compile, record and analyze data to compare properties several soil samples (e.g. students may use techniques to determine percentage volume of solid material texture, pH, water content, and water holding capacity and percolation rates)
- evaluate and report the on important relationships between life and factors like air, water and soil.
- examine a variety of fertilizers to determine the phosphorus, potassium, and nitrogen content and relate these nutrient levels to the suitability of fertilizer for different plant species.
- calculate fertilizer rates of application based upon soil test results.

### **NOTES.**

Video: A Sense of Humus - a look at Organic Farming

## **Science Unit #3: Crop Production**

### **Overall Expectations**

By the end of this course, students will.

- determine the opportunities in and identify the basic principles field crop production;
- determine the nature and approved practices recommended for grain, oil and speciality field-crop production;
- Apply concepts of soil management into field crop production.

### **Specific Expectations**

By the end of this course, Students will.

- determine the benefits of field crop production as a personal enterprise or career opportunity;
- identify field crops;
- describe how to plant various field crops and utilize appropriate cultural practices;
- list appropriate procedures for harvesting and storing field crops;
- identify major crops grown for grain, oil, and special purposes;
- describe how to select field crops, varieties and seed;
- describe practices involved with property preparing seed beds, irrigating, pest control, harvesting and storing grain, oil, and specialty field crops;
- select and integrate information from various sources including electronic and print resources to answer the questions chosen
- select than use appropriate numeric, symbolic, graphic, and linguistic modes of representation to communicate scientific ideas, plans, results and conclusions.
- analyze data and information and evaluate evidence and sources of information, identifying flaws such as errors and bias;
- analyze the crop varietal selection booklets.
- investigate various cropping systems commonly used by local and regional farmers.
- calculate a crop budget for an enterprise.
- Investigate various of improving crop production

## **Science Unit #4: The Wise Use of Pesticides**

### **Overall Expectations**

By the end of this course, students will:

- recognize the impact crop losses due to pests.
- identify specific crop damage due to pests.
- identify the pesticides through a classification system.
- demonstrate an understanding of the modus operandi of the main pesticide classes.
- understand new technologies in pest control.

### **Specific Expectations**

By the end of this course, students will.

- distinguish between beneficial and harmful insects.
- classify crop pests as weeds, insects, fungi and viruses.
- explain the relationships of organisms in a field ecosystem.
- identification of major crop pests using keys and guides.
- selecting and recommending a pesticide for the control of a selected pest problem.
- describe the benefits of using an integrated pest management system.
- describe the procedure of the safe handling of pesticides.
- calculate the correct rates of pesticide application.
- demonstrate the skills required to plan and conduct a pesticide program.

## **Science Unit 5: Career Opportunities**

### **Overall Expectations**

By the end of this course, students will.

- identify a broad spectrum of opportunities associated with agribusiness;
- demonstrate understanding of the specific educational requirements to pursue careers in agribusiness
- demonstrate a basic understanding how economic factors influence agriculturally related jobs.

### **Specific Expectations**

By the end of this course, Students will.

- evaluate job opportunities available in the field of agriculture.
- identify a variety of occupations and careers in the agribusiness field.
- describe programs offered by post-secondary institutions in the agricultural field and employment prospects associated.
- create a portfolio of materials necessary for admission in a post-secondary institution
- select and integrate information from various sources including electronic and print resources to answer the questions chosen
- select then use appropriate numeric, symbolic, graphic, and linguistic modes of representation to communicate scientific ideas, plans, results and conclusions.
- analyze data and information and evaluate evidence and sources of information, identifying flaws such as errors and bias;
- Identify post-secondary institutions in the agribusiness field;
- identify jobs and careers in the agribusiness field.

This unit is a combined, integrated unit between the two sections.

## **Science Optional Unit: New Directions in Agriculture**

### **Overall Expectations**

By the end of this course, students will. describe the role that modernization and application of new technologies have played in agrarian societies evaluate various trend in Agriscience (e.g. organic farming, gene therapy, selective breeding, hydroponics) describe the elements, trend and career opportunities in the Agri-Food System. describe the nutrient requirements for human health and the processes used in food science to ensure an adequate and wholesome food supply.

### **Specific Expectations**

By the end of this course, Students will.

- discuss nutritional needs of humans and the food groups that meet these needs; relate methods used in the processing and preserving of foods;
- describe techniques used to enhance retail sales of food commodities; understand the principles of genetics; identify systems of breeding;
- describe new reproductive technology as it applies to agriculture explaining the costs and benefits of using such technologies (e.g., use of reproductive technologies by: a horticulturist, farmer - selective breeding processes).
- understand types of testing programs. describe some of the latest findings in Agriscience.
- select and integrate information from various sources including electronic and print resources to answer the questions chosen select than use appropriate numeric, symbolic, graphic, and linguistic modes of representation to communicate scientific ideas, plans, results and conclusions.
- analyze data and information and evaluate evidence and sources of information, identifying flaws such as errors and bias;
- analyze and report on a recent innovation, methodology or technology in agriculture explaining its impact on agribusiness and society as a whole.



## **Business Unit 1: Record keeping**

### **Overall Expectations**

By the end of the course, students will.

- demonstrate an understanding of all aspects of the accounting cycle;
- explain the need for financial records in an enterprise such as farming;
- demonstrate a basic understanding of the computer technology used in maintaining accounts.

### **Specific Expectations**

By the end of the course, students will:

- use basic accounting terminology;
- identify, analyze and record transactions in a journal;
- recognize asset, liability, equity, revenue and expense accounts and calculate net worth;
- post to ledger accounts and generate a trial balance, and resolve errors;
- demonstrate basic proficiency with accounting application software;
- analyze data from journals and represent it graphically using.

## **Business Unit 2: Accounting**

### **Overall Expectations**

By the end of the course, the student will.

- generate financial statements and interpret the information they present and make decisions regarding the viability of operations;
- compare computer assisted accounting to traditional methods of accounting;
- use productivity software to organize, analyze, and evaluate information.

### **Specific Expectations**

By the end of the course, the student will:

- construct a properly formatted statement of revenue and expenses;
- generate a properly formatted account form and a report form balance sheet;
- interpret the information provided by financial statements;
- apply basic spreadsheet functions (entering labels, values, formulae, formatting, saving and loading, navigating, editing, deleting, moving, replicating, absolute and relative cell referencing, changing cell width and height, insertion and deletion of rows and columns);
- state the necessity for closing accounts and perform simple closing entries;
- locate and rectify discrepancies between bank statements and cash ledger balances in preparing a bank reconciliation statement;
- state the purpose of the TD1 and T4 forms and mandatory and voluntary deductions;
- explain the different methods of remuneration;
- construct a payroll journal using a spreadsheet and use tables to determine CPP, E.I., and FIT deductions, and record all information;
- adapt standardized crop budget forms using a spreadsheet and arrive at a break even point for a crop;
- use an entry level accounting software program to maintain records;
- perform analyses regarding fixed and variable costs.
- reconcile bank and personal records;
- use a spreadsheet to perform the payroll recording function;
- use a spreadsheet to adapt a standardized crop budget form to arrive at a breakeven point;

### **Business Unit 3: The Agrifood Marketing Environment**

#### **Overall Expectations**

By the end of the course, students will.

- describe the various components and activities involved in marketing;
- identify the influences on consumer purchasing behaviour;
- identify the factor's affecting farm operations;

#### **Specific Expectations**

By the end of the course, students will.

- segment markets and target consumer groups.
- state the factors involved in product design, pricing and placing;
- summarize the implications of various channels of distribution.
- outline the considerations involved in the consumer or industrial purchasing decision;
- outline the political, economic, social, and technological influences farmers operate under;
- assess the need for marketing in light of the decline in subsidies and world trade;
- identify the various components of marketing;
- identify the components of the marketing mix and consider possible strategies
- evaluate different channels of distribution;
- explain the functions of distributors;
- describe the importance of the catering sector to the food industry;
- describe the consumer and industrial buying process;
- explain the difference between functional and psychological attributes and added value;
- define and explain the importance of branding;
- describe the product life cycle;
- describe different pricing strategies;
- explain how supply and demand determine an equilibrium price; market cycles; auctions;

## **Business Unit 4: The Agribusiness Environment**

### **Overall Expectations**

By the end of the course, the student will.

- assess the impact of external forces on agribusiness;
- identify the key elements in arranging financing of an enterprise;
- identify the support structures available in farming communities.

### **Specific Expectations**

By the end of the course, the student will:

- identify the advantages and disadvantages of genetic modification of crops;
- explain the reason for marketing boards and cooperatives;
- state the importance of export markets;
- outline considerations in obtaining financing.
- outline co-operative principles;
- describe the importance of export markets, international trade and the significance of WTO, GATT and NAFTA;
- demonstrate understanding of the "three Cs' of credit and loan applications;

## **Business Unit 5: Career Opportunities**

### **Overall Expectations**

By the end of this course, students will.

- identify a broad spectrum of opportunities associated with agribusiness;
- demonstrate understanding of the specific educational requirements to pursue career's in agribusiness
- demonstrate a basic understanding how economic factors influence agriculturally related jobs.

### **Specific Expectations**

By the end of this course, Students will.

- evaluate job opportunities available in the field of agriculture.
- identify a variety of occupations and careers in the agri-business field.
- describe programs offered by post-secondary institutions in the agricultural field and employment prospects associated.
- create a portfolio of materials necessary for admission in a post-secondary institution
- select and integrate information from various sources including electronic and print resources to answer the questions chosen
- select then use appropriate numeric, symbolic, graphic, and linguistic modes of representation to communicate scientific ideas, plans, results and conclusions.
- analyze data and information and evaluate evidence and sources of information, identifying flaws such as errors and bias;
- identify post-secondary institutions in the agribusiness field;
- identify jobs and careers in the agribusiness field.

This unit is a combined, integrated unit between the two sections.

### **Origin**

The development of this course took place over the past year(1998/99). Delhi District Secondary School is in the heart of the tobacco belt and members of its rural community are employed in farm or farm related businesses . A pilot was run in the fall of 1999 and teachers involved in the pilot wrote and edited the curriculum expectations taking into account the demographics of the school community. This course was developed in consultation with the University of Guelph Agri-foods faculty and Fanshawe College. The Fanshawe College business faculty worked with a committee made up of two parent council members, the head of guidance, science and business, the principal and a board level curriculum consultant to discuss the development of this course and alternative educational experiences for local students. A study on the implementation and development of this interdisciplinary course has been part of the course pilot and adds credibility to the document.

### **Evaluation**

Indicators that this course is meeting students needs would include: percentage of students who pass this course percentage of new students who enrol in this course in future years percentage of students who access grade 11 Workplace or other courses in science and business student response survey staff completion of "strengths, areas for improvement, and next steps" survey consultation with neighbouring boards who are operating similar programs consultation with post-secondary agriculture faculties that accept graduates of our course.

**Achievement Chart – Grades 9–10, Science**

| Categories  | 50–59%<br>(Level 1)   | 60–69%<br>(Level 2)   | 70–79%<br>(Level 3)   | 80–100%<br>(Level 4)  |
|---|---|---|---|---|
| <b>Knowledge/<br/>Understanding</b>   | <b>The student:</b>   |   |   |   |
| – understanding of concepts, principles, laws, and theories (e.g., identifying assumptions; eliminating misconceptions; providing explanations)                         | – demonstrates limited understanding of concepts, principles, laws, and theories  | – demonstrates some understanding of concepts, principles, laws, and theories     | – demonstrates considerable understanding of concepts, principles, laws, and theories | – demonstrates thorough understanding of concepts, principles, laws, and theories       |
| – knowledge of facts and terms  | – demonstrates limited knowledge of facts and terms                               | – demonstrates some knowledge of facts and terms                                  | – demonstrates considerable knowledge of facts and terms                              | – demonstrates thorough knowledge of facts and terms                                    |
| – transfer of concepts to new contexts  | – infrequently transfers simple concepts to new contexts                          | – sometimes transfers simple concepts to new contexts                             | – usually transfers simple and some complex concepts to new contexts                  | – routinely transfers complex concepts to new contexts                                  |
| – understanding of relationships between concepts   | – demonstrates limited understanding of relationships between concepts            | – demonstrates some understanding of relationships between concepts               | – demonstrates considerable understanding of relationships between concepts           | – demonstrates thorough and insightful understanding of relationships between concepts  |
| <b>Inquiry</b>  | <b>The student:</b>   |   |   |   |
| – application of the skills and strategies of scientific inquiry (e.g., initiating and planning, performing and recording, analysing and interpreting, problem solving) | – applies few of the skills and strategies of scientific inquiry                  | – applies some of the skills and strategies of scientific inquiry                 | – applies most of the skills and strategies of scientific inquiry                     | – applies all or almost all of the skills and strategies of scientific inquiry          |
| – application of technical skills and procedures (e.g., microscopes)  | – applies technical skills and procedures with limited competence                 | – applies technical skills and procedures with moderate competence                | – applies technical skills and procedures with considerable competence                | – applies technical skills and procedures with a high degree of competence              |
| – use of tools, equipment, and materials  | – uses tools, equipment, and materials safely and correctly only with supervision | – uses tools, equipment, and materials safely and correctly with some supervision | – uses tools, equipment, and materials safely and correctly                           | – demonstrates and promotes the safe and correct use of tools, equipment, and materials |

| Categories  | 50–59%<br>(Level 1)   | 60–69%<br>(Level 2)  | 70–79%<br>(Level 3)  | 80–100%<br>(Level 4)  |
|---|---|--|--|---|
| <b>Communication</b>  | <b>The student:</b>   |  |  |   |
| – communication of information and ideas  | – communicates information and ideas with limited clarity and precision                                   | – communicates information and ideas with moderate clarity and precision                               | – communicates information and ideas with considerable clarity and precision                                   | – communicates information and ideas with a high degree of clarity and precision  |
| – use of scientific terminology, symbols, conventions, and standard (SI) units                | – uses scientific terminology, symbols, conventions, and SI units with limited accuracy and effectiveness | – uses scientific terminology, symbols, conventions, and SI units with some accuracy and effectiveness | – uses scientific terminology, symbols, conventions, and SI units with considerable accuracy and effectiveness | – uses scientific terminology, symbols, conventions, and SI units with a high degree of accuracy and effectiveness          |
| – communication for different audiences and purposes  | – communicates with a limited sense of audience and purpose   | – communicates with some sense of audience and purpose   | – communicates with a clear sense of audience and purpose  | – communicates with a strong sense of audience and purpose  |
| – use of various forms of communication (e.g., reports, essays)                               | – demonstrates limited command of the various forms   | – demonstrates moderate command of the various forms   | – demonstrates considerable command of the various forms   | – demonstrates extensive command of the various forms   |
| – use of information technology for scientific purposes (e.g., specialized databases)         | – uses technology with limited appropriateness and effectiveness  | – uses technology with moderate appropriateness and effectiveness                                      | – uses appropriate technology with considerable effectiveness  | – uses appropriate technology with a high degree of effectiveness   |
| <b>Making Connections</b>   | <b>The student:</b>   |  |  |   |
| – understanding connections among science, technology, society, and the environment           | – shows limited understanding of connections in familiar contexts   | – shows some understanding of connections in familiar contexts   | – shows considerable understanding of connections in familiar and some unfamiliar contexts                     | – shows thorough understanding of connections in familiar and unfamiliar contexts   |
| – analysis of social and economic issues involving science and technology                     | – analyses social and economic issues with limited effectiveness  | – analyses social and economic issues with moderate effectiveness                                      | – analyses social and economic issues with considerable effectiveness  | – analyses complex social and economic issues with a high degree of effectiveness   |
| – assessment of impacts of science and technology on the environment                          | – assesses environmental impacts with limited effectiveness   | – assesses environmental impacts with moderate effectiveness   | – assesses environmental impacts with considerable effectiveness   | – assesses environmental impacts with a high degree of effectiveness  |
| – proposing courses of practical action in relation to science- and technology-based problems | – extends analyses of familiar problems into courses of practical action with limited effectiveness       | – extends analyses of familiar problems into courses of practical action with moderate effectiveness   | – extends analyses of familiar problems into courses of practical action with considerable effectiveness       | – extends analyses of familiar and unfamiliar problems into courses of practical action with a high degree of effectiveness |



**Achievement Chart – Grades 9–10, Business Studies**

| Categories  | 50–59%<br>(Level 1)  | 60–69%<br>(Level 2)  | 70–79%<br>(Level 3)   | 80–100%<br>(Level 4)   |
|---|--|--|---|--|
| <b>Knowledge/<br/>Understanding</b>   | <b>The student:</b>  |  |   |  |
| – knowledge of facts and terms  | – demonstrates limited knowledge of facts and terms                        | – demonstrates some knowledge of facts and terms                         | – demonstrates considerable knowledge of facts and terms                        | – demonstrates thorough knowledge of facts and terms                                       |
| – understanding of concepts, principles, and theories   | – demonstrates limited understanding of concepts, principles, and theories | – demonstrates some understanding of concepts, principles, and theories  | – demonstrates considerable understanding of concepts, principles, and theories | – demonstrates thorough and insightful understanding of concepts, principles, and theories |
| – understanding of relationships between concepts   | – demonstrates limited understanding of relationships between concepts     | – demonstrates some understanding of relationships between concepts      | – demonstrates considerable understanding of relationships between concepts     | – demonstrates thorough and insightful understanding of relationships between concepts     |
| <b>Thinking/Inquiry</b>   | <b>The student:</b>  |  |   |  |
| – critical and creative thinking skills (e.g., evaluating business situations; analysing and solving business problems; making decisions)                             | – uses critical and creative thinking skills with limited effectiveness    | – uses critical and creative thinking skills with moderate effectiveness | – uses critical and creative thinking skills with considerable effectiveness    | – uses critical and creative thinking skills with a high degree of effectiveness           |
| – inquiry skills (e.g., formulating questions; planning; selecting strategies and resources; analysing, interpreting, and assessing information; forming conclusions) | – applies few of the skills involved in an inquiry process                 | – applies some of the skills involved in an inquiry process              | – applies most of the skills involved in an inquiry process                     | – applies all or almost all of the skills involved in an inquiry process                   |

| Categories   | 50–59%<br>(Level 1)   | 60–69%<br>(Level 2)  | 70–79%<br>(Level 3)  | 80–100%<br>(Level 4)   |
|--|---|--|--|--|
| <b>Communication</b>   | <b>The student:</b>   |  |  |  |
| – communication of information and ideas (e.g., through writing, visual and oral presentations)  | – communicates information and ideas with limited clarity                               | – communicates information and ideas with some clarity                                   | – communicates information and ideas with considerable clarity                               | – communicates information and ideas with a high degree of clarity, and with confidence          |
| – use of language, symbols, and visuals  | – uses language, symbols, and visuals with limited accuracy and effectiveness           | – uses language, symbols, and visuals with some accuracy and effectiveness               | – uses language, symbols, and visuals with considerable accuracy and effectiveness           | – uses language, symbols, and visuals with a high degree of accuracy and effectiveness           |
| – communication for different audiences and purposes (e.g., choice of language and style relevant to business environments)                    | – communicates with a limited sense of audience and purpose                             | – communicates with some sense of audience and purpose                                   | – communicates with a clear sense of audience and purpose                                    | – communicates with a strong sense of audience and purpose                                       |
| – use of various forms of communication (e.g., memos, letters, reports)  | – demonstrates limited command of the various forms                                     | – demonstrates moderate command of the various forms                                     | – demonstrates considerable command of the various forms                                     | – demonstrates extensive command of the various forms  |
| <b>Application</b>   | <b>The student:</b>   |  |  |  |
| – application of concepts, skills, and procedures in familiar contexts   | – uses concepts, skills, and procedures in familiar contexts with limited effectiveness | – uses concepts, skills, and procedures in familiar contexts with moderate effectiveness | – uses concepts, skills, and procedures in familiar contexts with considerable effectiveness | – uses concepts, skills, and procedures in familiar contexts with a high degree of effectiveness |
| – transfer of concepts, skills, and procedures to new contexts   | – transfers concepts, skills, and procedures to new contexts with limited effectiveness | – transfers concepts, skills, and procedures to new contexts with moderate effectiveness | – transfers concepts, skills, and procedures to new contexts with considerable effectiveness | – transfers concepts, skills, and procedures to new contexts with a high degree of effectiveness |
| – use of equipment, materials, and technology  | – uses equipment, materials, and technology safely and correctly only with supervision  | – uses equipment, materials, and technology safely and correctly with some supervision   | – uses equipment, materials, and technology safely and correctly                             | – demonstrates and promotes the safe and correct use of equipment, materials, and technology     |
| – application of technology (e.g., choice of tools and software, ethical use)  | – uses technology with limited appropriateness and effectiveness                        | – uses technology with moderate appropriateness and effectiveness                        | – uses appropriate technology with considerable effectiveness                                | – uses appropriate technology with a high degree of effectiveness                                |
| – making connections (e.g., between personal experiences and the subject, between subjects, between subjects and the world outside the school) | – makes connections with limited effectiveness  | – makes connections with moderate effectiveness  | – makes connections with considerable effectiveness  | – makes connections with a high degree of effectiveness  |