

**EVALUATING  
ACADEMIC READINESS  
FOR APPRENTICESHIP TRAINING**  
Revised for  
**ACCESS TO APPRENTICESHIP**

**COMMUNICATIONS SKILLS  
SYNTHESIS OF INFORMATION**

**AN ACADEMIC SKILLS MANUAL  
for  
The Horticulture Trades**

This trade group includes the following trades:  
Arborist, and  
Horticulturist

*Workplace Support Services Branch  
Ontario Ministry of Training, Colleges and Universities*

*Revised 2011*

In preparing these Academic Skills Manuals we have used passages, diagrams and questions similar to those an apprentice might find in a text, guide or trade manual.

**This trade related material is not intended to instruct you in your trade. It is used only to demonstrate how understanding an academic skill will help you find and use the information you need.**

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## COMMUNICATIONS SKILLS

### SYNTHESIS OF INFORMATION

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*An academic skill required for the study of the  
Horticulture Trades*

#### **INTRODUCTION**

*Photosynthesis* is a process which produces carbohydrates: The energy from sunlight, carbon dioxide and water react in plants containing chlorophyll (the green matter of plants). This reaction produces carbohydrates – a substance different from any of the ingredients which form them. If any of the reacting substances of photosynthesis were not present, carbohydrates would not form.

An *alloy* is a substance you get when you combine two or more metals, along with other elements such as carbon. This combination, or *synthesis*, produces a new metal produces a new metal. The new metal has different qualities such as corrosion resistance, toughness and hardness. Stainless steel and brass are examples of alloys. Using a synthesized alloy enables you to avoid unwanted weaknesses in the original metals, such as softness or brittleness.

***Synthesis of information*** means combining pieces of information to arrive at an integrated whole. If you manage to synthesize all the complex parts of an assignment, you end up with a successfully completed project. In your training and in your work, you read texts, manuals, guides and handbooks to find out how and why you do things in specific ways. You learn skills and techniques working on the job. You *synthesize* all this information to see how it fits into the bigger picture – how it applies to the small motors service trades. By *synthesizing* your information, you get results you wouldn't get from one source alone.

Practical applications of *synthesis of information* range from writing clear and concise contract proposals, work orders and accident reports to selecting and applying information from texts, manuals, guides, schematic drawings and handbooks to find out how and why you do things in specific ways. You have to bring different types of information together make a working drawing or to outline the steps for replacing a valve. When you are in charge of a project, you have to bring together information, people and materials. It is your job to synthesize all of these different parts of the task.

In this skill sheet, we look at the following aspects of *synthesizing information*:

- ◆ Order of Synthesis
- ◆ Combining Information
- ◆ Using Synthesis

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## **PART I**

### **ORDER OF SYNTHESIS**

#### **Where do I Start?**

Often a good place to start is to ask questions.

**Example:** When you are learning how to understand sources of bacterial infection in plants, you might want to find out how to recognize the infection, how it might cause damage, to the soil around the plant or to people, what treatments are available and how they might affect the plant, the soil or people

To answer these questions, you have to find and collect information from sources such as texts, tables, manuals, codebooks, teachers, and supervisors. You learn details about the disease and the treatment options. Organize and compare the information; ask more questions and find answers.

Next, you have to organize all this material so it is available and useful. You synthesize it and you have a new understanding of which materials to choose in which circumstances.

#### **1. Gathering Knowledge**

When you begin to study your trade, you will probably learn information in the pattern set by instructors and your texts and manuals. Information is usually presented in a logical order. Texts and manuals start with general ideas and go on to more specific details and procedures. You proceed through the classes and texts systematically to cover all the relevant material.

**Example:** When you learn about equipment, you probably learn about it in order set up in your textbook. You would read about lubricants in chapter 4, turn to chapter 7 when the text tells you to, and then to chapter 9. The text tells you when to go to the different sections, chapters, tables or figures. Your instructor may add handouts or recommend a certain book for more information about a topic. Finally, you might go to a manufacturer's guide. The Your job will be to put all of that information together.

You learn this material by:

- ◆ reading,
- ◆ making notes,
- ◆ listening to your teachers and other students,
- ◆ discussing ideas
- ◆ answering questions.

You will use a number of strategies to help you learn and to organize the information so that you remember it and can use what you already know when you come across a new idea. You will gather pieces of knowledge about all the aspects of your trade. You will learn:

- ◆ facts
- ◆ theories, and
- ◆ practice.

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## 2. Combining Knowledge

You will combine this information in several ways. In some instances, you add to information in the same order as it is presented in a textbook or other resource. In the same way you that you reassemble a piece of equipment you are repairing, you combine the pieces systematically, to get the complete picture.

Your job will be to put all of that information together, you will start to synthesize it. You will:

- ◆ compare ideas,
- ◆ classify products and procedures according to how similar and different they are,
- ◆ evaluate the relevance and usefulness of a material,
- ◆ summarize the information, and
- ◆ draw conclusions from what you have found.

These strategies will help you organize and remember what you are learning. Each thing you learn will fit into the whole body of knowledge about your trade.

**Example:** You are learning about plants and their classification.

When you understand how one category of material is classified, you can relate it to classifying something else.

- You can compare the way each thing in a category is similar and understand why it is classified as part of that group.
- You can use what you understand to classify something else.

Once you have foundational knowledge, you will be asked to complete assignments or projects that require you to use a synthesis of that information. You will have to figure out what procedures or tools to use to complete a task. You will have to plan the order. To do these things you will:

- think through what you already know about the subject,
- perhaps get more information to find solutions to problems
- ◆ talk to people who can help you clarify anything you are unsure about,
- ◆ set priorities and,
- ◆ finally, combine all this information to suit the situation.

Synthesizing information so that it is useful is a lifelong task. It requires relevant background information, and an ability to observe and learn from your experience. As you try out new ideas and procedures, you rate how they work in different situations. Gradually you build up a storehouse of ideas you know are good. You can pick which technique to use in which situation. You get to know who is a good resource to talk to for answers. Now you can synthesize, that is combine, all your sources of information until you have a complete picture.

**Example:** You use synthesis of information to help organize an assignment. Some steps you might take include:

1. Decide on what the job involves. It could be to select a drill bit, solve a power tool problem, develop a pattern, or understand a computer process.
2. Make a list of materials required and estimated costs.
3. Find and collect information from various sources: texts, manuals, charts, experts, sales people at the local store and your own experience.
4. Organize and compare this information to bring all the steps together.

Each new piece of information adds to your knowledge. Just as importantly, it may change your understanding of a situation.

**Examples:** As part of your course, you will be directed to provincial and federal standards governing your trade, to association standards and codes. You may be told where to find them. Or, it may be up to you to find the document such as in this example:

This publication provides general information only. All pesticide use must comply with the product label and with Regulation ZZZ of the Ontario *Pesticides Act*.

You will learn, in logical order, when a situation or treatment requires another level of information:

Health Canada has established maximum residue limits (MRL) for pesticides. Growers may discover that retailers and processors demand **more** restrictive limits. Be prepared to find which restrictions apply.

You will also learn what trade terms mean as you move along:

*Bunch-type* turfgrasses spread primarily or exclusively by tillering. If seeded at sufficient rates, they can form a uniform turf.

### 3. Using Knowledge

Once you have foundational knowledge, you will be asked to complete assignments or projects in the shop that require you to use a synthesis of that information. You will have to figure out what procedures or tools to use to complete a task. You will have to plan the order. To do these things you will:

- think through what you already know about the subject,
- perhaps get more information to find solutions to problems
- ◆ talk to people who can help you clarify anything you are unsure about,
- ◆ set priorities and,
- ◆ finally, combine all this information to suit the situation.

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After you have gathered and then combined the pieces of information, you should be ready to answer some questions about the topic. You will be tested on how well you have synthesized all this material through answering chapter questions, handing in assignments and writing tests.

**Example:** You have been learning about soil and have been given some questions to answer:

1. How do I identify fertile soil?
2. How can I tell different soil types apart?
3. What is the difference between acid or alkaline soil?
4. Is one type more common in this area?
5. Why is it important to know the difference between the two types?

The first two questions are “What is it?” questions that ask you to identify, recognize or describe something.

The third and fourth questions asks you to understand how the two materials differ and how they are similar.

Then you are asked to recognize applications.

*Note: You could answer questions like these on any subject.*

#### **4. Applying Knowledge**

At some point you will take all of this information and apply it to a project, or a job. You will have to collect and organize information, not as it is set out in a text or in your training program, but *as you need it for that project*.

**Example:** You have been given a special fabricating project that involves welding. Before you start the project, you need information from several sources, and you need to do a little experimenting to be sure you meet the goal. The following might be required:

- Understand the design of the item to be built.
- Find the gauge of metal recommended and the measurements of the pattern to be followed.
- Understand what happens when joining (welding) the selected metal.
- Find and consult the right table with amperage figures for welding.
- Note whether the table gives adequate information or whether you need specifics from a supplier.
- Fine-tune amperage settings;
- Experiment with a scrap of the same thickness.
- Compare your results on the scrap with the expected results before proceeding.

The information you gather will relate to your purpose and the specific application. What will the finished product be used for? What stresses and conditions must it meet? What codes apply so that the final product meets industry standards? You need to ask all the questions that are relevant to the situation.

Each new piece of information adds to your knowledge. Synthesizing this information allows you to plan for factors such as shrinkage in metal and understand how designs for fittings serve their purpose.

As your experience grows, you are able to deal with more difficult situations as you meet them. You accumulate knowledge and you use that knowledge to acquire the *skills* of the trade. This process does not stop. You will update and upgrade both knowledge and skills throughout your career.

### Tables

A table is a synthesis of information. Someone has gathered details about the topic and organized them so you find information quickly. It is usually easy to find details in the table format.

Combine Table 1 and Passage 1 to synthesize the available details on this topic. **Use the text and the table to answer the questions which follow. The answers are at the end of this skills manual.**

**TABLE 1: Shade Tolerance: Turfgrasses**

High		
Fine fescues	▲	St. Augustinegrass
Colonial bentgrass		Zoysiagrass
Tall fescue		Centipedegrass
Creeping bentgrass		Carpetgrass
Kentucky bluegrass		Bahiagrass
Perennial ryegrass	▼	Bermudagrass
Low		

**Note:** The turfgrasses listed on the left side of the Table are cool-season turfgrasses. Those on the right side are warm-season types.

### Passage 1

#### Turfgrass and Shade

Lawns established with a turfgrass not suited for shade may deteriorate under shade conditions. Kentucky bluegrass sod is an example. The areas in shade may die or become 'weed'-infested. A Kentucky bluegrass/fine fescue seed mixture can be used where there is insufficient light because the fine fescue is shade-adapted. Both warm-season and cool-season turfgrasses range from shade intolerance to good shade adaptation. For home lawns, choose for the zone and for the local environment.

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**Questions:**

1. According to Passage 1 and Table 1, fine fescues or St. Augustinegrass would have approximately equal shade tolerance.

T F

2. For central Ontario and moderate shade conditions, you could choose:

- a) tall fescue or Centipedegrass
- b) creeping bentgrass or carpetgrass
- c) tall fescue or creeping bentgrass

3. For home lawns, a mixture of two types of grass seed can be used if some areas have low light.

T F

You will have seen that the table presents its synthesis of information very simply. The headings in a table clearly and briefly direct you to the information. The heading at the top of Table 1 tells you what it covers. The information in each column is clearly organized from the most tolerant to the least.

Footnotes offer more information. Did you read the note at the bottom of the table? If not, go back and read it now. It tells you which grasses are warm season ones and which are cool season ones.

*The table is a summary, so it does have limitations.*

**Example:** A table is an adequate source to select the right classification and grade of metals used for fabrications or for avoiding weld splatter but be careful. *But*, it does not give you enough information to understand the relationship between voltage and burn through.

Unless you have already read about the process in detail, you may not know what to expect if you “*reduce wire speed*”.

Because information in tables is usually brief, a table may send you to other sources for further details. If you don’t know how to do something or don’t understand it, you will have to consult another manual or guide, or talk to an expert.

### **Taking your own notes**

Just as you would gather all of the tools necessary to do a particular job, you also need to gather all of the information required to do the job, then apply it correctly. It is a challenge to your note-taking and organization skills to gather information and then find it when you need it.

Some information will be essential for *every job* you do, but *it may not be repeated*.

**Example:** You find this instruction about safety procedures.

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Find updated health and safety procedures in Section IV. Refer to these procedures when using hand and power tools, when welding, soldering or cutting.

You would have to find out what is in Section IV. *More importantly*, you have to apply the safety procedures.

Trades people use different methods to organize and file information under a topic. You might photocopy or write out the details and keep them in a notebook that is always with you on a job. You might use a sticky note (with words like *soldering/ safety*) to mark the pages. You might examine this section before each job to prepare yourself. Whatever method you use, make sure you keep your information nearby.

### **Problems?**

Do not be discouraged by problems. When you have problems with a tool, a technique or a choice you've made in a product, use it as an opportunity to learn more about your trade. Search for more information to find the reasons for the problem and the solutions to it.

Synthesized information contributes to your overall knowledge and skills. You will know *why* it is essential to follow correct maintenance for tools or to use the right treatment when you understand *how* one thing relates to another. When you understand how your knowledge and skills relate to a finished product, you will understand why it is essential to use the right tools. You will understand why the correct guides and tables are essential to getting you the right result.

In developing this knowledge, you will often search for answers from several sources sifting through one piece of information after another to compare and evaluate it. Synthesizing this information will help you do your job.

## ***PART II*** ***COMBINING INFORMATION***

In this section, we'll ask you to combine details from **Passages 2**, and **3** to understand and to combine details about *liming soils* and *a type of plant*.

**Read Passages 2 and 3, and answer the questions that follow. Be sure to read all the available information in the passages. Answers are at the end of this skills manual.**

### **Passage 2** **Liming Soil**

Soil elements may change form because of reactions taking place in the soil. These reactions are controlled by pH. However, plants may (or may not) be able to use elements in the changed forms. For example, when soil pH falls below 5.8, phosphorus reacts with iron producing an insoluble iron compound. When pH is above 6.0, the reaction may reverse and free up the phosphorus. If pH is higher, phosphorus reacts with calcium which, once again, ties up phosphorus. Between pH 6.0 and 7.0, phosphorus is most available to plants.

For best results, a crop should match soil pH, but sometimes, factors such as leaching of interchangeable bases or acid fertilizers, can increase soil acidity. Soil pH can be adjusted by incorporating soil, amendments or by adding lime. Although this may not be possible for extensive sites, it is possible for smaller areas. While crops may respond very quickly to fertilizers, they may not respond so quickly to additions of lime. However, liming acid soils removes aluminum toxicity and promotes the action of organisms that fix the nitrogen for legumes. Lime also acts as a fertilizer because the calcium it contains is a plant nutrient. Some limes also supply magnesium to acid, sandy soils.

### Add information

Understanding one concept can make understanding the next one easier. Read Passage 3 before you answer the questions.

#### Passage 3 Hardy Hydrangeas

Hydrangeas include bushes, trees, vines and are both deciduous and evergreen. The genus includes subsections, dozens of species and hundreds of cultivars. The most common types can be grown easily in clay to cultivated soils, in full sun to partial shade and are hardy.

The *hydrangea macrophylla* is a common variety found in gardens throughout this region. They can be grown in containers or forced indoors. Flowering is continuous from early summer with large, pale blooms. In moist, mild, dappled shade Zone 6 (or warmer) conditions, this hydrangea can become quite large. The bloom is blue in acid soil (pH 6.5 or less), but the bloom will turn pink if lime is added to soil.

#### Questions:

1. You would most likely add lime to soil for the reason below:
  - a) to increase soil acidity
  - b) for a quick fertilizer "fix"
  - c) to remove aluminum toxicity
2. Reactions of soil elements can be controlled by adding lime to soil.

**T F**

3. Additions of lime benefit legumes and hydrangea plants.

**T F**

4. If a hydrangea produced blue flowers in its first year and pink in its second year, you might conclude the following:
  - a) It is growing in a Zone 6 or warmer zone.
  - b) The soil had been limed the first year.
  - c) The soil pH value changed from 6.5 to 7.0

Passage 2 explains the effect of soil pH on the health and growth of plants and how soil can be restored to proper balance. Passage 3 continues by adding information about a particular plant. Unless you synthesized the information in the passages, you would not be able to either answer the questions *or* help a customer.

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You can see that the addition of information moves you from theory about soils to the practical application of making soil suitable for the plants. When you understand a scientific theory, you understand *why* and *how* something can be harmed or how it can be made better.

There are still questions you might want answered as to how the concept applies to your work. You might want to know:

1. What does pH mean?
2. How can you test for the pH level in soil?
3. Does liming soil change the pH to a higher figure or a lower one?
4. What additive could you use to change the soil in the opposite direction?
5. Are there plants that thrive in soils with a pH above 7? What are they?

These questions will send you on an information search. You will need to find and combine new details about pH in soils. The point is that you need good information before you can synthesize the details into a complete picture. You need the whole picture – a synthesis – before you can plan and then successfully complete a project.

*Note: Use the index and table of contents when looking for information in your textbook and service manuals. It will save you time.*

### **Keep an open mind**

When you read several sources or different passages, you may get reasons or explanations that differ from each other. Keep an open mind. Often new details force you to rethink what you know. If what you read conflicts with what you have already learned, look at it positively. Maybe you are being offered information you hadn't considered before or that is more up to date.

Check other reliable sources and continue to learn. Use all sources available to find the right guides, to understand equipment, safety, principles and concepts such as load and stress, and to find causes of problems. As you add information from a variety of sources and combine this with your experience, your understanding of the whole picture will continue to grow.

You do have to decide eventually what information to use in order to get started. If you understand *how* something works, you can understand *how* it will affect a result. When you see the relationship between what you do and the result you get, you will understand how to proceed. When you combine all the details and guides at hand, you can get on with the job.

### **Fact or opinion**

Synthesis will help you deal with information that isn't directly stated. Sometimes, you get a sense of a writer's attitude – whether he or she has a dislike for a certain method or a preference for a particular tool. You may pick up from a co-worker that a certain way of doing something is the best. Another worker might suggest that the same procedure is not so important.

Here you will need to bring together all your information to make your own evaluation. It is a good habit to ask the question "why" a lot. First, you will find out why something is done a certain way. Second, you can give clear explanations to clients so they understand what you are doing and what they are paying for.

It's important to know the source of any information and be aware of the differences between trade tips that may not be backed up by reliable data and advice that is backed up by facts. An up-to-date, approved trade text, an expert in the field, a manufacturer's guide and a shop manual are examples of reliable sources. Check your sources routinely to see that they are dependable and current. Check with trade experts to ensure that your trade approves any Internet source.

You do all this information searching and source checking so that you have reliable material to gather into a synthesis. Before you combine details into a comprehensive picture, you need to be sure that you can count on their validity. Then you can use the synthesis as a base from which you make your decisions about the different aspects of your work.

### **PART III** **USING SYNTHESIS**

#### **Setting priorities**

**A priority is something that is first in importance.** When you *set a priority*, you decide on the importance of something by comparing it to something else. You also decide on the sequence in which different steps are ordered. Rating or setting priorities is important on the job.

Synthesizing information helps you do this successfully. When you prioritize, you answer questions such as the following:

- ◆ In what order should I plan the steps of the job?
- ◆ What needs to be done first?
- ◆ What safety and code issues should I be aware of before I start?
- ◆ Which client's needs are most pressing?
- ◆ What time commitments have I made to clients?

#### **Safety first**

A caution or warning indicates the information is essential to your safety on the job, so find out about it before you proceed. It sets the first priority in your planning for a project.

##### **Example:**

**Warning:** If suppliers or employers do not supply details on ingredients, health effects, handling or other aspects of this and other hazardous products call the Construction Safety Association of Ontario at 1-800- .

##### **Example:**

**Caution!** Do not pour near open flame or combustible materials.

You need to find out if a container that once held a flammable material is considered a *combustible material*.

You need to find out about the general reactions of combustible materials and products.

You need *all* the details and directions, and you need to get them from the correct source so you are safe on the job. Track directions that send you to a different source. It is important to

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completely understand them as they will apply in other situations. Find out all you can, so you understand the caution fully and can apply it properly in all situations.

**Example:**

Select the correct strength of product from the selection guide. If the guide is unavailable, contact the manufacturer.

In this situation:

- Find and read the appropriate selection guide. If the guide is *not* available:
- Make a phone call to the manufacturer.
- Apply the information to this job and keep the guide for subsequent jobs.

You will be referred to safety details.

**Examples:**

A combination of factors can cause a problem, and this makes diagnosis difficult. Do not guess. If you cannot match the problem with a cause, consult other publications, specialists, nurseries or the Pest Diagnostic Clinic (See the appendix).

Use of this heat appliance must comply with the Canadian Electrical Code Part XX, Section YY. Follow the procedures exactly as listed.

Find the health and safety procedures in Section IV. Refer to this section when using any of these products.

**Set priorities for the tasks**

You set priorities when you plan your work. If you have four jobs to do, which one comes first? Maybe you always do jobs in the order they come in or as materials become available. Maybe you start with the easiest and work through to the hardest. Other factors also play a part. Before you draw a conclusion about a task, collect all of the information. Examine the information detail-by-detail. Consider this the sorting stage.

**Examples:**

A cracked and, possibly, dangerous tree is considered an emergency, so you put a regular, good customer on hold for a few days.

You need to co-ordinate a design with another professional so a job will have to wait until the designer is free.

**Set priorities for the details**

As you assess and arrange these collected facts in priority, you may reach a new synthesis. This may lead to new predictions or conclusions about the difficulty or success of this job.

**Example:** You need to understand more about lubricants. You study types, viscosity, oxidation, how to transfer and store oils and other relevant details. When you cover this information carefully, you feel ready to choose oil that meets all the job requirements; it will meet all the operating conditions. You then read this:

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For further information on temperature ranges see chapters 7 and 9.

You find and read the information on temperature ranges in chapters 7 and 9. At the end, you read this:

Use only oils which are recommended by the manufacturers of the equipment.

This *last* direction is an essential condition to the operation of a system. In fact, it may not be up to you to choose oil; it's up to you to *read the manufacturer's guide* and use the oil recommended. This direction has priority in the decision.

As you assess and arrange collected facts in priority, you may reach a new synthesis. This may lead to new predictions or conclusions about the difficulty or success of this job.

### **Problem areas**

Suppose you need to solve a problem with turfgrass. Find information from your texts, manuals and your own experience. Add notes from more experienced workers and then organize what you've read. You can guide yourself with a series of questions:

- What is the zone and the local climate?
- What are the site conditions?
- What are the germination rates for different species?
- What problems should I look for?

Then go on to answer the questions.

Then go on:

1. Find details about the problem.
2. Put the details into groups or categories.
3. Compare the details to the problem.
4. Bring the information together to find solutions to the problem.

You can usually determine the priority *before* starting your search. For example, codes, safety and industry standards are essential, but how important is cost? Is it also a priority? As new questions arise during your research, you may have to go to other sources to answer the questions or retrace your steps through the same material. Whichever you do, make sure you understand everything thoroughly so you can meet *all* the conditions of the job?

You can generally apply this approach when considering the consequences of your actions. This applies whether the job is complicated or straightforward. Ask questions and assess actions as you go.

### **Evaluating the information**

Sometimes you have to read carefully and then decide whether the information is clear to you, or whether it is useful to you.

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**Example:** Either a drag (pulling) or leading (pushing) technique may be best for MIG welding. Probably the drag technique is best for short circuiting transfer and the leading technique is best for spray arc transfer.

**Is it clear? Is it useful?** The word “probably” suggests there may not be a clear choice between drag and leading technique except for some types of welding. What does this mean for you? Does the choice depend on a welder’s skill or experience? Should you decide on one technique, experiment with both, ask an experienced welder for more advice, or all of the above? You need to evaluate this information to decide how to proceed.

Sometimes information leaves is no room for questions.

**Example:**  
Extreme care is required to avoid cross threading. Forcing caps into place may result in severe damage to carrier and cap.

Be very sure you recognize when information does not offer you choices.

**Example:**  
Never, under any circumstances use a steel rule except as a precision measuring tool. It will nick, mar and become damaged.

Be sure you recognize **warnings, cautions**, health and safety directions that are matters of fact and governed by codes. These are areas and issues where you have no choice.

The last example, Passage 5, offers advice to amateur and professional mechanics. Whichever group you fit into, decide how the advice applies to the job you are doing.

**Passage 5**  
**Servicing**

If you are reasonably handy with tools, you should be able to perform most of the procedures covered here. However, you should assess your skill level and your tools before considering a major disassembly of the engine or gear case. For example, some operations involve a press. It would be wise to have a shop equipped for this operation do the work rather than attempting it yourself. Some procedures require precision instruments, the skill and knowledge to use them. As the results you get depend on precise measurements, it may be a good idea to decide, *before you start*, if you have the equipment, tools, knowledge and skills to proceed.

This passage advises you to consider a number of possible problem factors *before* you start a job. The passage reminds you to assess before you take on a job. Don’t get up to your elbows in grease only to discover you’re missing a tool, attachment, guide or skill to complete what you’ve started.

## **CONCLUSION**

Synthesis of information involves combining different pieces of information to compare and evaluate information, to set priorities or to solve problems. Your ultimate purpose is to produce the best results on the job.

### **Summary**

1. **Ask questions** directly related to the assignment or job.
2. **Research and collect information from all sources.** Note and follow any directions that tell you to look somewhere else for information.
3. **Organize, compare, prioritize, and evaluate information** in relation to the questions you need to answer.
4. **Find answers to all questions** and be prepared to review your steps to answer new questions that arise.
5. **Notice the difference between fact and opinion** when searching for answers.
6. **Combine information from several sources** to provide answers or instructions that you would not find using one source only.

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**ANSWER PAGE**

**PART I      Table 1: Shade Tolerance: Turfgrasses  
Passage 1, Turfgrass and Shade**

1. According to Passage 1 and Table 1, fine fescues or St. Augustinegrass would have approximately equal shade tolerance.

**T** Find each turfgrass on Table 1 to compare its position to the others. Fine fescues and St. Augustinegrass are at the top or HIGH range of shade tolerance. They may not be equally suited for the same zone or local climate, however, they have high shade adaptability.

2. For central Ontario and moderate shade conditions, you could choose:
  - c) tall fescue or creeping bentgrass

Both of these are listed on the left side of Table 1 and the footnote states these are cool-season species and, thus, suited for central Ontario. Both are in the middle range, between high and low, so they would be adapted to moderate (middle) shade. Answers a) and b) both include warm-season grasses which may not be suited for central Ontario.

3. For home lawns, a mixture of two types of grass seed can be used in areas of low light.

**T** Passage 1 gives an example of a mixture where: the fine fescue, adapted to shade, will grow in the areas that Kentucky bluegrass would die or become weed-infested. Other mixtures may also be better suited for low light or mixed light and shade.

**PART II      Passage 2, Liming Soil  
Passage 3, Hardy Hydrangeas**

1. You would most likely add lime to soil for the reason below:

- c) to remove aluminum toxicity

Passage 2 states that lime added to acid soils removes aluminum toxicity. Rule out Answer a) since lime will *decrease* soil acidity. Although lime may act as a fertilizer, *crops may not react ...quickly to additions of lime*, so rule out Answer b). You should read further to discover which type of fertilizer would do this.

2. Reactions of soil elements can be controlled by adding lime to soil.

**F** Passage 2, paragraph one says the reaction of soil elements are controlled by pH and gives an example; however, when you read paragraph two, it says soil pH can *be adjusted*, which is different from controlled.

3. Additions of lime benefit legumes and hydrangea plants.

**F** Passage 2, paragraph two suggests that by fixing nitrogen for legumes it benefits this plant. Passage 3, however, doesn't tell us whether lime is a benefit for hydrangea plants. It has an effect on one type, but it is not clear if this is a benefit or not.

4. If a hydrangea produced blue flowers in its first year and pink in its second year, you would conclude the following:

c) The soil pH value changed from 6.5 to 7.0

The change is caused by a change to pH, whether intentional or not (last sentence of Passage 2). The blooms will become large in Zone 6 (Answer a). Passage 3 doesn't indicate when lime was added to cause the colour change; that is, whether the colour change would occur the same year or whether it would require a number of years (Answer b).