Natural Resources

Revised 12/2023

Purpose

This contest is designed to measure the ability of the student to identify common fauna & flora of California and to test the students’ ability to develop and explain the pros & cons concerning natural resource issues. The contest will attempt to determine or demonstrate scientific and political aspects of Natural Resources of California. The contest will attempt to determine the student’s knowledge needed for future employment and/or advanced education in the field.

Contestants

Teams consist of four members, with all four individual scores plus the team events counting as the team score. All team members are eligible for individual awards.

Classes

|  |  |  |
| --- | --- | --- |
|  | **Individual Points** | **Team Points** |
| Plant ID | 100 | 400 |
| Animal ID | 100 | 400 |
| Knowledge Test | 100 | 400 |
| Manipulative Skills | 50 | 200 |
| INDIVIDUAL TOTAL | 350 | 1,400 |
| Team Packing | - | 100 |
| Team Oral Presentation | - | 100 |
| TEAM TOTAL |  | 1,600 |

Tie Breaker

1. The individual scoring the highest on the knowledge test will be the individual winner. The team scoring the highest on the oral presentation will be the team winner.
2. If a tie still exists, the total score of the team or individual will be used to determine the high team or individual.
3. If a tie still exists for an individual or team then the manipulative skills score will determine the high team or individual.

Sub-contest Awards

Sub-contest awards will be given for high teams and individuals in the following areas: Plant ID, Animal ID, Knowledge Test, Manipulative Skills, and Team Packing & Team Oral Presentation combined (team only).

Rules

1. [Part I. Plant ID](#Part I. – Plant ID) – 100 points – 50 samples at two points each.
	1. The sample will be freshly cut foliage and fruit or flower, when possible. If a fresh sample is not available, a pressed sample can be utilized. An 8 x 11 picture or a computer-generated picture of similar size can be substituted for Wildflowers and must depict a recognizable sample. The score sheet for Plant Identification will be a copy of the Curricular Code list and will be matching. The students will write the proper number on the line adjacent to the plant’s scientific name (common name next to it). The Plant samples will be numbered 1-50.
	2. A time limit of 45 minutes will be provided for plant identification.
2. [Part II. Animal ID](#Part II. Animal ID) – 100 points - 50 animals at two points each.
	1. Recognizable pictures or mounted specimens may be used. Animals from each area should be equally represented. The score sheet for Animal Identification will be a copy of the Curricular Code list and will be matching. The students will write the proper number on the line adjacent to the animal’s scientific name (common name next to it).
	2. A time limit of 45 minutes will be provided for animal identification.
3. [Part III. Oral Topic Team Presentation](#Part III.Oral Presentation) – 100 points.
	1. Contestants will have 30 minutes to prepare a ten minute oral presentation from a topic given based on rotational years. Subtopic to be determined by contest host. All reference and graphic materials will be provided to the team at the beginning of their preparation time including twenty 3”x5” index cards that may be used during the team’s presentation. The judge will ask a question at the conclusion of the presentation. Two minutes will be allowed for the team’s response. Contest host will supply materials specific to their scenario. Scorecard is in the appendix.

	Oral Presentation Topics:
		1. Forest Management 2024
		2. Wildlife Management 2025
		3. Range Management 2026
		4. Energy 2027
		5. Soil Management 2028
		6. Water 2029
4. [Part IV. Knowledge Test](#Part IV. Knowledge Test) – 100 points.
	1. A written exam consisting of 50 multiple choice questions will be developed from the following Reference: ‘National Audubon Society Field Guide to California,” published by Alfred Knoph and authored by Fred heath and Peter Alden. The questions will come from pages 10 through 65.
5. [Part V. Team Packing](#Part V. Team Packing) – 100 points.
	1. Team members may use a standard stopwatch to track time.
	2. A saddled pack animal, lash rope and mantee will be provided to the team. In even years pack boxes will be provided and a box hitch will be used. The load items may include tools used on the trail such as saws, fuel containers, shovels, or similar trail or camp equipment. In odd years, canvas bags will be provided and a diamond hitch will be used. Possible load items may be sleeping bags and other tack put in canvas bags used on the trail or camp. The cycle will be alternate years.
	3. See scorecard below.
6. Part VI. Manipulative Skills (hands on) - 50 points.
Contest is to include any five of the following activities using a minimum of one from each category at ten points each. Score this section on a continuum scale: From 1-10 points per activity.
	1. Dendrochronology
		1. Given a log cross section, determine the age of a tree counting the pith as two years.
		2. Given a log cross section determine the time period of a drought.
		3. Given a log round cross section determine if a fire is indicated in the growth rings.
		4. Using a long round, determine the time period in which a release cut was made.
	2. Measurements/Instrumentation
		1. GPS – entry level skills to include but not limited to marking/finding way points, evaluation, longitude and latitude.
		2. Determine the elevation of a given indicated point, on a topographical/contour map. Ten points possible - 2 per contour intervals off of the correct answer.
		3. Take five random samples each one foot square, of native forage (from rangeland) from a given area (from 2-10 acres) and determine the total weight of biomass (forage) the five plots and then determine the biomass for the indicated area.
		4. Determine the location of two geographical sites, give the latitude and longitude using GPS equipment. 5 points each.
		5. Clinometer used to measure or evaluate slope.
	3. Environmental Analysis
		1. The student will be given five tracks at two points each to identify from page 343 and 344 of the National Audubon Society Field Guide to California.
		2. Given one of the following: Given a Life Zone such as Lower Montane Zone, Upper Montane Zone, Sub Alpine Zone, Alpine Zone, or Foothill Oak Woodland, indicate the primary plants that occupy the Life Zone. Name up to five.
7. Reference:
	1. The ‘National Audubon Society Field Guide to California’, by Alden and Heath, published by Alfred Knoph, New York

****Appendices****

****Part I. – Plant ID****

|  |  |  |
| --- | --- | --- |
| **Browse** |  |  |
| **\_\_\_** | Adenostoma fasiculatum | Chamise |
| **\_\_\_** | Amsinckia menziesii | Fiddleneck |
| **\_\_\_** | Arctostaphylus manzanita | Common Manzanita |
| **\_\_\_** | Artemisia spp | California Sage or Big Sagebrush |
| **\_\_\_** | Baccharis pilularis | Coyote Bush |
| **\_\_\_** | Ceanothus cuneatus | Buckbrush |
| **\_\_\_** | Ceanothus thyrsiflorus | Blue Blossom |
| **\_\_\_\_** | Cerocarpus betuloides | Mountain Mahogany |
| **\_\_\_** | Cornus stolonifera | Red Osier Dogwood |
| **\_\_\_** | Cercis occidentalis | Western Redbud |
| **\_\_\_** | Cytisus scoparius | Scotch Broom |
| **\_\_\_** | Eriogonum fasiculatum | California Buckwheat |
| **\_\_\_\_** | Garrya elliptica | Silktassel |
| **\_\_\_** | Heteromeles arbutifolia | Toyon |
| **\_\_\_** | Hordeum jubatum | Foxtail Barley |
| **\_\_\_** | Isomeris arborea | Bladder Pod |
| **\_\_\_** | Juniperus californica | California Juniper |
| **\_\_\_** | Marah macrocarpus | Wild Cucumber |
| **\_\_\_** | Larrea tridentate | Creosote Bush |
| **\_\_\_** | Lonicera hispidula | California Honeysuckle |
| **\_\_\_** | Polystichum munitum | Western Sword Fern |
| **\_\_\_** | Prosopis pubescens | Screwbean Mesquite |
| **\_\_\_** | Quercus dumosa | Scrub Oak |
| **\_\_\_** | Rhamnus californica | Coffeeberry |
| **\_\_\_** | Rhus ovata | Sugar Bush |
| **\_\_\_** | Ribes aureum | Golden Current |
| \_\_\_ | Ribes speciosum | Fuchsia Flowered Gooseberry |
| \_\_\_ | Rubus ursinus | Trailing Blackberry |
| **\_\_\_** | Salix hindsiana | Sandbar Willow |
| **\_\_\_** | Vaccinium ovatum | Evergreen Huckleberry |
| \_\_\_ | Vitis californica | California Wild Grape |
|  |  |  |
| **Trees** |  |  |
| **\_\_\_** | Abies concolor | White Fir |
| **\_\_\_** | Acer negundo | California Box Elder |
| **\_\_\_** | Alnus rubra | Red Alder |
| **\_\_\_** | Arbutus menziesii | Pacific madrone |
| **\_\_\_** | Calocedrus decurrens | Incense Cedar |
| **\_\_\_** | Cornus nuttallii | Pacific Dogwood |
| **\_\_\_** | Fraxinus latifolia | Oregon Ash |
| **\_\_\_** | Juglans californica | California Black Walnut |
| **\_\_\_** | Juniperus occidentalis | Western Juniper |
| **\_\_\_** | Pinus contorta | Lodgepole Pine |
| **\_\_\_** | Pinus lambertiana | Sugar Pine |
| **\_\_\_** | Pinus ponderosa | Ponderosa or Yellow Pine |
| **\_\_\_** | Pinus sabiniana | Foothill or Gray Pine |
| **\_\_\_** | Platanus racemosa | California Sycamore |
| **\_\_\_** | Populus fremontii | Fremont Cottonwood |
| **\_\_\_** | Populus tremuloides | Quaking Aspen |
| **\_\_\_** | Pseudotsuga menziesii | Douglas Fir |
| **\_\_\_** | Quercus chrysolepis | Canyon Live Oak |
| **\_\_\_** | Quercus douglasii | Blue Oak |
| **\_\_\_** | Quercus kelloggi | California Black Oak |
| **\_\_\_** | Quercus lobata | Valley Oak |
| \_\_\_ | Salix lucida | Pacific Willow |
| \_\_\_ | Sambucus mexicana | Blue Elderberry |
| **\_\_\_** | Sequoia sempervirens | Coastal Redwood |
| **\_\_\_** | Sequoiadendron giganteum | Giant Sequoia |
| \_\_\_ | Umbellularia californica | California Bay Laural |
| **\_\_\_** | Yucca brevifolia | Joshua Tree |
| **\_\_\_** | Yucca schidigera | Mojave Yucca |
|  |  |  |
| **Wild Flowers** |  |  |
| **\_\_\_** | Aguilegia formosa | Red Columbine |
| **\_\_\_** | Castilleja spp. | Paintbrush |
| **\_\_\_** | Delphinium nuttallianum | Nuttall’s Larkspur |
| **\_\_\_** | Datura stramonium | Jimson Weed |
| **\_\_\_** | Epilobium canum | California Fuchsia |
| **\_\_\_** | Erodium cirutarium | Red-Stem Fillaree |
| **\_\_\_** | Erysimum capitatum | Western Wallflower |
| **\_\_\_** | Eschscholzia californica | California Poppy |
| **\_\_\_** | Fragaria vesca | Woodland Strawberry |
| **\_\_\_** | Heracleum lanatum | Cow Parsnip |
| **\_\_\_** | Lasthenia californica | California Goldenfields |
| **\_\_\_** | Lilium paradalinum | Leopard Lily |
| **\_\_\_** | Iris missouriensis | Western Blue Flag Iris |
| **\_\_\_** | Lupinus spp. | Lupine |
| **\_\_\_** | Mimulus aurantiacus | Bush Monkey Flower |
| **\_\_\_** | Mentha arvensis | Field Mint |
| **\_\_\_** | Nemophila menziesii | Baby Blue Eyes |
| **\_\_\_** | Pennisetum setaceum | Fountain Grass |
| **\_\_\_** | Potentilla pacifica | Pacific Silverweed |
| **\_\_\_** | Rhomneya coulteri | Matilija Poppy |
| **\_\_\_** | Rosa californica | California Wild Rose |
| **\_\_\_** | Salvia dorrii | Grayball Sage |
| **\_\_\_** | Sarcodes sanguinea | Snow Plant |
| **\_\_\_** | Taraxacum officinale | Dandelion |
| **\_\_\_** | Typha latifolia | Broadleafed Cattail |
| **\_\_\_** | Urtica dioica | Stinging Nettle |
| **\_\_\_** | Viola adunca | Western Blue Violet |
| **\_\_\_** | Verbascum thapsus | Wooly Mullein |
| **\_\_\_** | Xerophyllum tenax | Bear Grass |
| **\_\_\_** | Zigadenus venenosus | Death Camas |

Part II. Animal ID

A balanced selection of items from each area is recommended.

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| **Mammals -**  | **Tracks, Pictures or Mounts** |  |
| \_\_\_ | Antilocarpa americana | Pronghorn Antelope |
| \_\_\_ | Balaenoptera musculus | Blue Whale |
| \_\_\_ | Canis latrans | Coyote |
| \_\_\_ | Cervus elaphus | Tule Elk |
| \_\_\_ | Didelphis virgiviana | Virginia Opossum |
| \_\_\_ | Enhydra lutris | Sea Otter |
| \_\_\_ | Erethizon dorsatum | Porcupine |
| \_\_\_ | Felis concolor | Mountain Lion |
| \_\_\_ | Lepus californicus | Black Tailed Rabbit |
| \_\_\_ | Lynx rufus | Bobcat |
| \_\_\_ | Lutra canadensis | Northern River Otter |
| \_\_\_ | Marmonta flaviventris | Yellow-Bellied Marmot |
| \_\_\_ | Martes americana | American Marten |
| \_\_\_ | Megaptera novaeangliae | Humpback Whale |
| \_\_\_ | Mephitis mephitis | Striped Skunk |
| \_\_\_ | Odocoileus hemoinus | Black-tailed Deer |
| \_\_\_ | Orcinus orca | Killer Whale (Orca) |
| \_\_\_ | Ovis canadensis | Bighorn Sheep |
| \_\_\_ | Procyon lotor | Raccoon |
| \_\_\_ | Sciurus griseus | Western Gray Squirrel |
| \_\_\_ | Spermophilus beecheyi | California Ground Squirrel |
| \_\_\_ | Sylvilagus audubonii | Cottontail |
| \_\_\_ | Tamias amoenus | Yellow-Pine Chipmunk |
| \_\_\_ | Taxidea taxus | American Badger |
| \_\_\_ | Tursiops truncatus | Bottled-Nosed Dolphin |
| \_\_\_ | Urocyon cinereoargenteus | Gray Fox |
| \_\_\_ | Urus americanus | Black Bear |
| \_\_\_ | Vulpes velox | Kit Fox |
| \_\_\_ | Zalophus californianus | California Sea Lion |
|  |  |  |
| **Birds** |  |  |
| \_\_\_ | Aix sponsa | American Wood Duck |
| \_\_\_ | Anas crecca | Green-winged Teal |
| \_\_\_ | Anas cyanoptera  | Cinnamon Teal |
| \_\_\_ | Anas platyrhynchos | Mallard |
| \_\_\_ | Aquila chrysaetos | Golden Eagle |
| \_\_\_ | Ardea herodias | Great Blue Heron |
| \_\_\_ | Branta canadensis | Canada Goose |
| \_\_\_ | Bubo virginianus | Great Horned Owl |
| \_\_\_ | Bucephala albeola | Bufflehead |
| \_\_\_ | Buteo jamaicensis | Red Tailed Hawk |
| \_\_\_ | Buteojam aicensis | Valley Quail |
| \_\_\_ | Cathartes aura | Turkey Vulture |
| \_\_\_ | Ceryle alcyon | Belted King Fisher |
| \_\_\_ | Charadrius vociferous | Killdeer |
| \_\_\_ | Colaptes auratus | Flicker |
| \_\_\_ | Egretta thula | Snowy Egret |
| \_\_\_ | Falco peregrinus | Peregrine Falcon |
| \_\_\_ | Falco sparverius | American Kestrel |
| \_\_\_ | Geococcyx californianus | Greater Roadrunner |
| \_\_\_ | Haliaeetus leucocephalus | Bald Eagle |
| \_\_\_ | Melanerpes formicivorus | Acorn Woodpecker |
| \_\_\_ | Meleagris gallopaua | California Wild Turkey |
| \_\_\_ | Oreortyx pictus | Mountain Quail |
| \_\_\_ | Sturnella neglecta | Meadow Lark |
| \_\_\_ | Tyto alba | Barn Owl |
| \_\_\_ | Zenaida macroura | Mourning Dove |
|  |  |  |
| **Fish** |  |  |
| \_\_\_ | Acipenser transmontanus | White Sturgeon |
| \_\_\_ | Ameiurus nebulosus | Brown Bullhead/Speckled Catfish |
| \_\_\_ | Catostomus occidentalis | Sacramento Sucker |
| \_\_\_ | Cyprinus carpio | Common Carp |
| \_\_\_ | Dasyatis dipterura | Diamond Stingray |
| \_\_\_ | Gymnothorax mordax | California Moray |
| \_\_\_ | Hypsypops rubicundus | Garibaldi |
| \_\_\_ | Ictalurus punctatus | Channel Catfish |
| \_\_\_ | Lepomis macrochirus | Bluegill |
| \_\_\_ | Micropterus dolomieu | Smallmouth Bass |
| \_\_\_ | Micropterus salmoides | Largemouth Bass |
| \_\_\_ | Mola mola | Ocean Sunfish |
| \_\_\_ | Morone saxatilis | Striped Bass |
| \_\_\_ | Ophiodon elongatus | Lingcod |
| \_\_\_ | Oncorhynchus kisutch | Coho/Silver Salmon |
| \_\_\_ | Oncorhynchus tshawtyscha | Chinook/King Salmon |
| \_\_\_ | Oncorhynchus aquabonita | Golden Trout |
| \_\_\_ | Oncorhynchus (Salmo) mykiss | Rainbow Trout |
| \_\_\_ | Paralichthys californicus | California Halibut |
| \_\_\_ | Pomoxis annularis | White Crappie |
| \_\_\_ | Salvelinus fontinalis | Brook Trout |
| \_\_\_ | Salmo trutta | Brown Trout |
| \_\_\_ | Sarda chiliensis | Pacific Bonito |
| \_\_\_ | Thunnus thynnus | Bluefin Tuna |
| \_\_\_ | Thunnus alalunga | Albacore |
| \_\_\_ | Xiphias gladius | Swordfish |
|  |  |  |
| **Amphibians and Reptiles** |  |  |
| **\_\_\_** | Bufo boreas | Western Toad |
| **\_\_\_** | Charina bottae | Rubber boa |
| **\_\_\_** | Coleonyx variegatus | Western Banded Gecko |
| **\_\_\_** | Crotalus cerastes | Sidewinder Rattlesnake |
| **\_\_\_** | Crotalus viridis | Western Rattlesnake |
| **\_\_\_** | Dicamptodon ensatus | Giant Pacific Salamander |
| **\_\_\_** | Diadophis punctatus | Ringneck Snake |
| **\_\_\_** | Elgaria multicarinata | Alligator Lizard |
| **\_\_\_** | Ensatina eschscholtzii | Ensatina Salamander |
| **\_\_\_** | Eumeces skiltonianus | Western Skink |
| **\_\_\_** | Gopherus agassizii | Desert Tortoise |
| **\_\_\_** | Hyla regilla | Pacific Tree Frog |
| **\_\_\_** | Lampropeltis getulus | Common Kingsnake |
| **\_\_\_** | Lampropeltis zonota | California Mountain Kingsnake |
| **\_\_\_** | Lichanura trivirgata | Rosy Boa |
| **\_\_\_** | Pituophis melanoleucus | Gopher Snake |
| **\_\_\_** | Phrynosoma coronatum | Coast Horned Lizard |
| **\_\_\_** | Rana catesbeiana | Bull Frog |
| **\_\_\_** | Sauromalus obesus | Chuckwalla |
| **\_\_\_** | Sceloporus occidentalis | Western Fence Lizard |
| **\_\_\_** | Taricha torusa | California Newt |
| **\_\_\_** | Thamnophis elegans | Western Terrestrial Garter Snake |
| **\_\_\_** | Thamnophis sirtalis | Common Garter Snake |
|  |  | Total Correct \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

Oral Presentation Scorecard

|  |  |
| --- | --- |
| **Skill** | **Points** |
| Technical Knowledge of the Subject | 20 |
| Organization (into, body, conclusion) | 20 |
| Speech (delivery and force) | 20 |
| Solutions and Critical Thinking | 20 |
| Balance Between Team Members | 20 |
| Possible Total | 100 |

**Animal Packing Scorecard Team Name & Number\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Points Possible** | **Points Earned** |
| **Team Work** |  |  |
|  | Communication between ALL members, with ALL members participating. | 5 |  |
|  | Teamwork weighing items and loading bags/boxes.  | 5 |  |
|  | 1 or 2 members carry load to animal while teammate on opposite side lifts ears of bag/box onto saddle. | 5 |  |
|  | **Total Team Work** | **15** |  |
| **Safety and Confidence with the Animal** |  |  |
|  | Do not throw mantee or lash rope over or under animal (hand to teammate). | 5 |  |
|  | Do not stand an unsafe distance behind animal (be close or far away).  | 5 |  |
|  | Do not wrap lead rope or lash rope around hands or arms. | 5 |  |
|  | Is holder able to control animal? It is holder’s job to keep animal from stepping on or getting tangled in rope. | 5 |  |
|  | Does holder have animal positioned correctly for packing? (Facing load and not too far away.)  | 5 |  |
|  | **Total Safety and Confidence with the Animal** | **25** |  |
| **Quality and Balance of the Load** |  |  |
|  | Bags/boxes packed with good weight distribution and heavy items on bottom. Any long items protruding out toward the animal’s flanks or neck need to be wrapped so that they are secure and not touching the animal. Do bags/boxes weigh the same?  | 10 |  |
|  | Top load centered with saddle forks visible.  | 5 |  |
|  | Bag/box with buck strap should go on first, on the off side. All straps on boxes/bags need to be snug across load and buckled.  | 5 |  |
|  | **Total Quality and Balance of the Load** | **20** |  |
| **Proper and Secure Mantee and Hitch** |  |  |
|  | Mantee centered with long edge across pack and equal amounts on each side. Mantee is tucked in on edges and behind forks with nothing hanging below bottom of boxes/bags. | 5 |  |
|  | No twists is lash cinch with buckle off of animals sides. The hook must face toward the rear of the animal.  | 5 |  |
|  | Is there a correct diamond or box hitch and is it centered?  | 10 |  |
|  | Is the lash rope tight and tied off securely with no loops or extra rope hanging below bottom of bags/boxes.  | 10 |  |
|  | **Total Proper and Secure Mantee and Hitch** | **30** |  |
| **Time \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**8 minutes or less = 10 points8:01 – 9:00 minutes = 8 points9:01 – 10:00 minutes = 6 points10:01 – 11:00 minutes = 4 points11:01 – 12:00 minutes = 2 pointsZero points awarded if the team is not finished at 12 minutes. Teams will be stopped at 12 minutes. | **10** |  |
|  | **Total possible (if within 8 minutes)** | **100** |  |
|  | **Final Score Possible** | **100** |  |

**Judging Guidelines**

We recognize that there are many correct and effective packing methods. This guide is intended only to standardize the packing rules and equipment used for the California FFA Natural Resources CDE. This information should be available, in advance, to the person providing the pack stock and equipment, to the judge, and to the teams. A copy of their scorecard should be sent home with each team.

An assistant with a calculator and clipboard should be provided to the judge to tally the scorecards and assist with unloading and weighing each load after the team finishes.

A method of weighing the boxes or bags should be provided by the judge.

Pack animal must be gentle and able to stand quietly and less than 15 hands at the top of shoulder.

Saddling, tighting cinches, and adjusting straps on pack saddles and ear straps on pack bags or boxes should be done by the judge and is not a part of the competition.

Items to be packed should be laid out as similarly as possible for each team and covered. After the team approaches the load, they will be given a short time to view the load, (without touching), and then given the command to begin, as the judge starts the time clock.

When duffel or stuff bags are to be included in the load, team should be advised that these are to be packed “as is” with nothing to be added or removed.

For this competition, the left side is referred to as “the on side” and right side as “the off side.”

Boxes/bags should have a buck strap on the off side load and should be loaded first.

Lash ropes must be long enough to wrap any items that protrude from front or rear of boxes and to tie off securely to the top of the load.

For both the Diamond and Box Hitch, the method used to tie the hitch should not be considered as long as the completed hitch is correct.

For the Diamond Hitch: Bags rather than boxes should be used and a top load that extends above the top of the forks must be provided.

For the Box Hitch: Boxes rather than bags should be used. Top load is optional. Load should include something that protrudes from the front or rear of boxes and needs to be wrapped to be secure.

It is suggested that each school contact an experienced packer in their area to demonstrate tying the actual hitch, as it is difficult to learn without “hands-on” experience.