INSPECTION AND IDENTIFICATION (45% of Exam Content)

Inspect for evidence of pests
Knowledge needed to accomplish the skill:

- Tools available for inspection and appropriate uses (e.g., flashlight, moisture meter, flushing agents)
- Probable locations of pests
- Types of evidence of pest presence (e.g., damage caused, egg types, frass)
- Safety precautions (e.g., equipment, personnel)

Inspect for conditions conducive to pests
Knowledge needed to accomplish the skill:

- Tools available for inspection and appropriate uses (e.g., flashlight, moisture meter, flushing agents)
- Conditions conducive to pests (e.g., site, weather, ambient conditions)
- Safety precautions (e.g., equipment, personnel)

Identify pests
Knowledge needed to accomplish the skill:

- Taxonomy and classification
- Morphology
- Biology (basic physiology, behavior, habitat, lifecycle, reproduction potential)
- Damage caused

Document and communicate findings of pest inspection and identification
Knowledge needed to accomplish the skill:

- How to explain pest thresholds and respond to customer expectations
- Use, limitations and types of pest thresholds
- What to document
- How to document
- Where to document
- To whom to communicate findings
- Adherence to ACE Code of Ethics
(MONITORING  12% of Exam Content)

**Identify and select appropriate monitoring tools**
Knowledge needed to accomplish the skill:

- Monitoring tools available and their uses/limitations and related safety precautions (e.g., flashlight, light traps, pheromone traps)
- Pests that are most commonly monitored (cockroaches, flies, stored product pests, termites, bed bugs)

**Place monitoring tools properly**
Knowledge needed to accomplish the skill:

- Proper use and placement of tools
- Appropriate combined use of tools

**Document and communicate findings of monitoring and recommendations**
Knowledge needed to accomplish the skill:

- What to document
- How to document
- Where to document
- To whom to communicate findings and recommendations
- Application of the ACE Code of Ethics

**SELECTION & IMPLEMENTATION OF CONTROL METHODS (28% of Exam Content)**

**Choose the appropriate control method(s) for pest management**
Knowledge needed to accomplish the skill:

- Cultural control options available, appropriateness of each, and advantages/limitations of each (e.g., sanitation, temperature, special lighting, habitat modification)
- Biological control options available, appropriateness of each, and advantages/limitations of each (e.g., predators, parasites, pathogens)
- Mechanical control options available, appropriateness of each, and advantages/limitations of each (e.g., traps/glueboards, pest proof design, removal, air curtains, lights)
- Chemical control options available, appropriateness of each, and advantages/limitations of each (e.g., IGRs, Pheromones/Attractants, Pesticides)
- Simple modes of action of commonly used pesticides
- Classifications of commonly used pesticides
- Pesticide resistance
- Pesticide formulations
• Pesticide application techniques
• Appropriateness (or not) of combinations of products
• Following label instructions, including disposal
• Relative effectiveness/efficacy versus risk of various control methods and options within each method
• Importance of selecting least hazardous effective method(s)/option(s)
• How to locate local/state regulations that may differ from product labels

Select the appropriate tool(s) for use with the pest management method(s) for pest scenarios
Knowledge needed to accomplish the skill:
• Tools available, appropriateness of each, and advantages/limitations of each and related safety precautions (e.g., compressed air sprayer, infrared camera, gas detector, duster)
• Regulations (if any) pertaining to each tool

Communicate which pesticides are or are not currently allowed for use by the EPA
Knowledge needed to accomplish the skill:
• In which cases certain products are used or not (cyclodiences, Chlorinated hydrocarbons (e.g., DDT, Chlordane, Lindane), Carbamates (e.g. aldicarb, carbofuran, propoxur), Organophosphates (e.g. malathion, chorprrifos, diazinon, mlathion)
• The reasons why (in general) pesticides are no longer used
• FIFRA’s major provisions
• Relationship between state and federal regulations (which takes precedence)
• Role that EPA plays in federal legislation (e.g., FIFRA)

Follow the label instructions and precautions
Knowledge needed to accomplish the skill:
• Common precautions
• Active ingredients
• Types of formulations
• Proper storage and disposal
• Concentration and mixing procedures
• Restricted use pesticides
• Legal and illegal uses
• Trade names, common names and chemical names
• Toxic dosages
• FIFRA
Educate the customer on their role in pest management
Knowledge needed to accomplish the skill:

- Critical messages to convey
- Appropriate methods for message conveyance
- Behavioral customer modifications

Perform selected pest control method(s)
Knowledge needed to accomplish the skill:

- Appropriate application techniques for each of the pest control methods
- Regulations and restrictions pertaining to application techniques and products
- Application of the ACE Code of Ethics

Document and communicate the pest control method(s) applied and tool(s) used for application
Knowledge needed to accomplish the skill:

- What to document
- How to document
- Where to document
- To whom to communicate
- Application of the ACE Code of Ethics

EVALUATION (15% of Exam Content)

Look for reduction in pests
Knowledge needed to accomplish the skill:

- Monitoring
- Identification
- Communication with customer

Analyze pre- and post-treatment effects
Knowledge needed to accomplish the skill:

- Acceptable thresholds
- Pest resistance
- How to analyze the presence of pests over space and time
- Managing customer expectations
- Interpreting results
Determine next steps
Knowledge needed to accomplish the skill:

- IPM process
- Methods/options available
- Use of results to affirm/modify pest management methods/options

Document and communicate evaluation findings
Knowledge needed to accomplish the skill:

- What to document
- How to document (forms to use)
- Where to document
- With whom to communicate
- Regulatory requirements
- Third party audits
- Application of the ACE Code of Ethics

Pests on the Exam
(Listed in descending order of relative importance under each header; thus likeliness of appearing on the exam decreases by order)

BITING AND STINGING pests potentially encountered by pest management professionals (PMP).

- Bed and bat bugs (Cimex spp.)
- Yellowjacket wasps (Vespula, Paravespula and Dolichovespula maculata) (The bald faced hornet)
- Paper wasps (Polistes spp.)
- Mosquitoes (family Culicidae)
- Honey bee, (Apis mellifera)
- Black widow spiders (Latrodectus spp.)
- Brown recluse spiders (Loxosceles spp.)
- Hornet (Vespa crabro)
- Cat flea (order Siphonaptera)
- Brown dog tick (Rhipicephalus sanguineus)
- American dog tick (Dermacentor variabilis)
- Scorpions (class Arachnida: order Scorpiones)
- Wolf spiders (family Lycosidae)
- Bumble bees (Bombus spp.)
- Black legged tick (Ixodes spp.)
• Solitary bees (Members of the families Apidae, Andrenidae, Megachilidae, Halictidae and Colletidae)
• Flesh flies (family Sarcophagidae)
• Mites (rodent and bird)
• Stable fly (*Stomoxys calcitrans*)
• Black & yellow mud dauber (*Sceliphron* spp.)
• Lone star tick (*Amblyomma americanum*)
• Sac spiders (family Miturgidae; previously Clubionidae) including *Cheiracanthium*
• Hobo spider and other funnel weaver spiders (family Agelenidae)
• Soft ticks (Argasidae)
• Cicada killer, (*Sphecius speciosus*)
• Ground spiders (family Gnaphosidae)
• Jumping spiders (family Salticidae)
• Organpipe mud dauber (*Trypoxylon* spp.)
• Head louse (*Pediculus humanus capitis*)
• Dust mites (*Dermatophagoides* spp.)
• Body louse (*Pediculus humanus humanus*)
• Crab louse (*Pthirus pubis*)
• Chigger mites (family Trombiculidae)

**FLIES (ORDER DIPTERA) potentially encountered by pest management professionals (PMP).**
• Small fruit (vinegar, pomace) flies (*Drosophila* spp.)
• House fly (*Musca domestica*) and lesser house fly (*Fannia canicularis*)
• Moth (drain, filter, sewer) flies (family Psychodidae)
• Phorid (humpbacked, scuttle, mausoleum) flies (family Phoridae)
• Fungus gnats (families Mycetophilidae (formerly Fungivoridae) and Sciaridae)
• Blow flies (family Calliphoridae)
• Cluster flies (*Pollenia rudis*)
• Flesh flies (family Sarcophagidae)
• Stable fly (*Stomoxys calcitrans*)
• Horse and deer flies (family Tabanidae)
• Small dung flies (family Sphaeroceridae)
• Crane flies (family Tipulidae)
• Soldier flies (family Stratiomyidae)
ANTS (FAMILY FORMICIDAE) potentially encountered by pest management professionals (PMP).

- Carpenter Ants (*Camponotus* spp.)
- Odorous house ant (*Tapinoma sessile*)
- Red imported fire ant (*Solenopsis invicta*)
- Pavement ant (*Tetramorium caespitum*)
- Pharaoh ant (*Monomorium pharaonis*)
- Argentine ant (*Linepithema humile*)
- Little Black Ant (*Monomorium minimum*)
- Acrobat Ants (*Crematogaster* spp.)
- Crazy ant (*Paratrechina longicornis*)
- Ghost Ant (*Tapinoma melanocephalum*)
- White Footed Ant (*Technomyrmex albipes*)
- Big Headed Ants (*Pheidole* spp.)
- Field Ants (*Formica* spp.)
- Harvester Ants (*Pogonomyrmex* spp.)

COCKROACHES (ORDER DICTYOPTERA; ALT. BLATTARIA) potentially encountered by pest management professionals (PMP).

- German cockroach (*Blattella germanica*)
- Asian cockroach (*Blattella asahinai*)
- American cockroach (*Periplaneta americana*)
- Brownbanded cockroach (*Supella longipalpa*)
- Smokybrown cockroach (*Periplaneta fuliginosa*)
- Oriental cockroach (*Blatta orientalis*)
- Australian cockroach (*Periplaneta australasiae*)
- Woods cockroach (*Parcoblatta* spp.)
- Surinam cockroach (*Pycnoscelus surinamensis*)

STORED PRODUCT AND FABRIC PESTS potentially encountered by pest management professionals (PMP).

- Indian meal moth (*Plodia interpunctella*)
- Cigarette and drugstore beetle (*Lasioderma serricorne* and *Stegobium paniceum*)
- Carpet/domestic beetles (*Anthrenus* and *Attagenus* spp.)
- Clothes moths (family Tineidae)
- Flour beetles (*Tribolium* spp.)
- Sawtoothed and merchant grain beetles (*Oryzaephilus* spp.)
- Warehouse & Cabinet Beetles (*Trogoderma* spp.)
• Psocids (Order Psocoptera)
• Rice Weevil (*Sitophilus oryzae*) and Corn Weevil (*Sitophilus zeamais*)
• Hide and larder beetles (*Dermestes* species)
• Angoumois Grain Moth (*Sitotroga cerealella*)
• Mediterranean Flour Moth (*Anagasta kuehniella*)
• Foreign Grain Beetle (*Ahasverus avena*)
• Plaster Beetles (family Lathridiidae)
• Spider beetles (family Ptinidae)
• Mealworm Beetles (*Tenebrio* spp.)
• Dust mites (*Dermatophagoides farina*)
• Bean Weevil (*Acanthocelides obtectus*)
• Flat Grain Beetle (*Cryptolestes pusillus*)
• Cowpea Weevil (*Callosobruchus maculatus*)
• Red Legged Ham Beetle (*Necrobia rufipes*)
• Cadelle (*Tenebriodes mauritanicus*)

**WOOD DESTROYING INSECTS** potentially encountered by pest management professionals (PMP).

• Subterranean termites, (*Reticulitermes* and *Coptotermes* spp.)
• Carpenter ants (*Camponotus* spp.)
• Formosan termite, (*Coptotermes formosanus*)
• Carpenter bee (family Xylocopidae)
• Drywood termites (*Kalotermes approximatus*, *Incisitermes* and *Cryptoterme*s spp.)
• Lyctid powderpost beetles
• Old house borer, (*Hylotrupes bajulus*)
• Anobiid beetles
• Bostrichid (false powderpost) beetles
• Long horned beetles (Cerambycidae)
• Dampwood termites (*Zootermopsis* and *Neotermes* spp.)
• Metallic wood boring beetles (family Buprestidae)

**OCCASIONAL INVADERS** potentially encountered by pest management professionals (PMP).

• Silverfish (order Thysanura)
• Springtails (Order Collembola)
• Earwigs (Order Dermaptera)
• Brown marmorated stink bug (*Halymorpha halys*)
• Millipedes (Class Diplopoda)
• Centipedes (class Chilopoda)
• Box elder bug, *Boisea trivittatus*
• Sowbugs and pillbugs (class Isopoda)
• House cricket, *Acheta domesticus*
• Cellar spiders (family Pholcidae)
• Asian multicolored lady beetle (*Harmonia axyridis*)
• Ground Beetles (family Carabidae)
• Field cricket, *Gryllus* spp.
• Clover mite (*Bryobia praetiosa*)
• Firebrat (order Thysanura)
• Comb footed (cobweb) spiders (family Theridiidae)
• Camel (cave) cricket (*Ceuthophilus* spp.)
• Thrips (order Thysanoptera)
• Elm Leaf Beetle (*Pyrrhalta luteola*)
• Aquatic Insects Adults (Trichoptera, Ephemeroptera, Plecoptera)

**COMMON COMMENSAL PESTS (NON-ARTHROPOD) potentially encountered by pest management professionals (PMP).**
• House mouse
• Norway rat
• Roof rat
• Pigeon (rock dove)
• Deer mouse
• English sparrow
• European starling
• Commensal bats (Chiroptera)