



VETERINARY SCIENCE

- Purpose:** To provide the Health Science student with an opportunity to develop and demonstrate knowledge and skills in veterinary medical care.
- Description of Event:** This event will consist of two rounds of competition. Round One will be a written, multiple choice test of knowledge and understanding. The top scoring competitors will advance to Round Two for the performance of selected skill procedure(s) identified in a written scenario. The scenario will require the use of critical thinking skills. The performance will be timed and evaluated according to the event guidelines.
- Dress Code:** Competitors shall wear proper business attire or official HOSA uniform, or attire appropriate to the occupational area, during the orientation and written test. Competitors will wear attire appropriate to the occupational area during the skill procedure(s). Bonus points will be awarded for proper dress.

- Rules and Procedures**
1. Competitors in this event must be active members of HOSA in good standing in the category in which they are registered to compete (Secondary or Postsecondary/Collegiate).
 2. The selection of specific procedures and the development of the written test shall be the responsibility of the National HOSA Competitive Events Program. The written test will consist of fifty (50) multiple choice items. Competitors will be given one hour to complete the test. There will be a verbal announcement when there are 15 minutes remaining for the test period.

Round One: Written Test Plan (Includes both Large and Small Animals)

Anatomy and Physiology	23%
Basic Nutrients	10%
Animal Behavior	6%
Diseases/Disease Prevention	15%
Zoonoses	6%
Clinical Practice	10%
Emergency Care/First Aid	12%
Principles of Surgery	12%
Veterinary Careers	6%

3. All competitors shall report to the site of the event orientation at the time designated. The Round One test will immediately follow the orientation. **No proxies will be allowed for the orientation.** No study materials are allowed in the room.
4. All official references are used in the development of the written test. The specific reference selected for each procedure is listed in the Facilities, Equipment and Materials section of these guidelines.
 - Lawhead, James and MeeCee Baker. *Introduction to Veterinary Science*. Thomson Delmar, latest edition.
 - Sirois, Margi. *Principles and Practices of Veterinary Technology*. Mosby, Latest edition.
 - American Red Cross. *Dog First Aid*. Staywell publishing, latest edition.References for Companion Animal Breeds/Species Identification:
 - Dogs = American Kennel Club - <http://www.akc.org/>
 - Cats = Cat Fancy - <http://www.cfainc.org/>

5. The test score from Round One will be used to qualify the competitor for the Round Two skill procedures, and will be used as a part of the final score for the event.
6. For national competition, 1-3 skill procedures will be selected. The procedures approved for Round Two are:
 - Procedure I: Preparation of the Operative Site
 - Procedure II: Lifting and Restraining a Dog
 - Procedure III: Identify Equipment and Instruments (*Including name of equipment or instrument and purpose or use.*)
 - Procedure IV: Simple Fecal Floatation
 - Procedure V: Identification of Parasites
 - Procedure VI: Canine Cardiopulmonary Resuscitation
 - Procedure VII: Identification of Companion Animal Breeds/Species
 - Procedure VIII: Apply/Remove Gauze Restraint Muzzle
7. States/National HOSA have the option of including Procedures III, V and/or VII at the same time as the Round One written test.
8. The selected procedure(s) for Round Two, in the form of a written scenario, will be presented to the competitor at the start of the skill to be performed. One or more procedures may be combined in the scenario. The timing for the skill will begin when the scenario is presented. The scenario will be the same for each competitor and will include a challenging component that will require the competitor to apply critical thinking skills.
9. The scenario is a secret topic. Professional ethics demand that competitors DO NOT discuss or reveal the secret topic for ANY event until after the event has concluded. Competitors who violate this ethical standard will be disqualified.
10. In case of a tie, the highest test score will be used to determine the rank.
11. Competitors must complete all steps of the procedure listed in the guidelines even if the steps must be simulated/verbalized. Steps may NOT be simulated/verbalized when the equipment/materials are available.
12. If called for in the scenario, artificial feces and urine will be used.
13. The competitor must earn a score of 70% or higher on the combined skill procedure(s) of the event (excluding the test and cognitive procedures III, V and VII) in order to be recognized as an award winner at the NLC.
14. Competitors will be stopped at the end of the time allowed for selected procedure(s).
15. Competitors must bring all items noted with *** in the materials section of these guidelines to the event.
16. Competitors must be familiar with and adhere to the **"General Rules and Regulations of the National HOSA Competitive Events Program."**

Required Personnel:

1. One Event Manager per event
2. One Section Leader per section
3. One judge per procedure per section (with expertise in the specific skill area)
4. Proctors for testing
5. One-two event assistants per section
6. One-two patients as required by the scenario (per section)
7. Timekeepers

Facilities, Equipment and Materials (Per Section)

General

1. Clinical and/or laboratory stations for selected procedures
2. Holding rooms or areas for competitors
3. Written scenario (one copy per competitor and judge)
4. Calculators, note pads, and pencils for the judges
5. Certificates for all competitors who complete Round One.
7. Stopwatch
- *** 8. Pens and pencils
- *** 9. Print copy of the event guidelines for the event orientation

Round One

Written Test (Reference: All resources)

1. One test copy per competitor
2. Scantron forms

Round Two:

Procedure I

Preparation of the Operative Site (Reference: Sirois)

1. Sterile latex gloves
2. Written scenario that indicates the patient's identify, surgical procedure being performed, and surgical site (either thoracic or abdominal)
3. Progress notes stating that the patient was bathed and the surgical site clipped and scrubbed.
4. Surgical scrub/germicide (e.g., povidone-iodine or chlorhexidine scrub)
5. Artificial animal
- *** 6. Sterile 4x4's (6/competitor – 4 for scrubbing and 2 for blotting)
7. 10% Povidone iodine solution in a spray bottle
8. Roll of 1" cloth tape
9. Alcohol-based handrub
10. Wrapped sterile bowl
11. Waste bag

Procedure II

Lifting and Restraining a Dog (Reference: Sirois)

1. Small artificial dog
2. Medium-sized artificial dog
3. Exam table
4. Alcohol-based handrub

Procedure III

Identify Equipment and Instruments (Reference: All resources)

1. 15 equipment/instruments from list OR photos of equipment/instruments
2. Answer sheets
- *** 3. Pencils
3. Masking tape to number instruments
4. centrifuge
5. refractometer
6. pipettes
7. differential cell counter
8. hand tally counter
9. scalpel handle
10. scalpel blades

11. Funnell Conical centrifuge tubes
12. balance scale
13. graduated cylinder
14. stitch (suture removal) scissors
15. sharp/blunt scissors
16. Metzenbaum scissors
17. bandage scissors
18. needle holder
19. tissue forceps
20. Babcock intestinal forceps
21. Kelly forceps
22. retractors
23. absorbable suture material
24. nonabsorbable suture material
25. hemostatic clips
26. tracheostomy tube
27. extraction forceps
28. nail trimmers
29. catheter
30. sponge forceps
31. Allis tissue forceps
32. ovariohysterectomy hook
33. Rochester-Carmalt forceps
34. dental scaler
35. dental curette
36. periodontal probe
37. Mayo scissors
38. Crile forceps
39. Backhaus towel clamps

Procedure IV Simple Fecal Floatation (Reference: Sirois)

1. Alcohol-based handrub
2. Simulated animal feces
3. Paper cups
4. Floatation solution (Commercially prepared or plain water labeled as floatation solution)
5. Tongue depressor
6. 10 cm (4" x 4") gauze squares
7. Shell vial or 15 ml conical centrifuge tube
8. Cover slip
9. Glass slide
- *** 10. Latex gloves

Procedure V Identification of Parasites (Reference: Sirois)

1. Numbered parasite slides or photos
2. Microscope
3. Answer sheet

Procedure VI Canine Cardiopulmonary Resuscitation (Reference: American Red Cross)

1. Canine CPR Mannequin
2. Blanket

Procedure VII Identification of Companion Animal Breeds/Species (AKC and Cat Fancy web sites.)

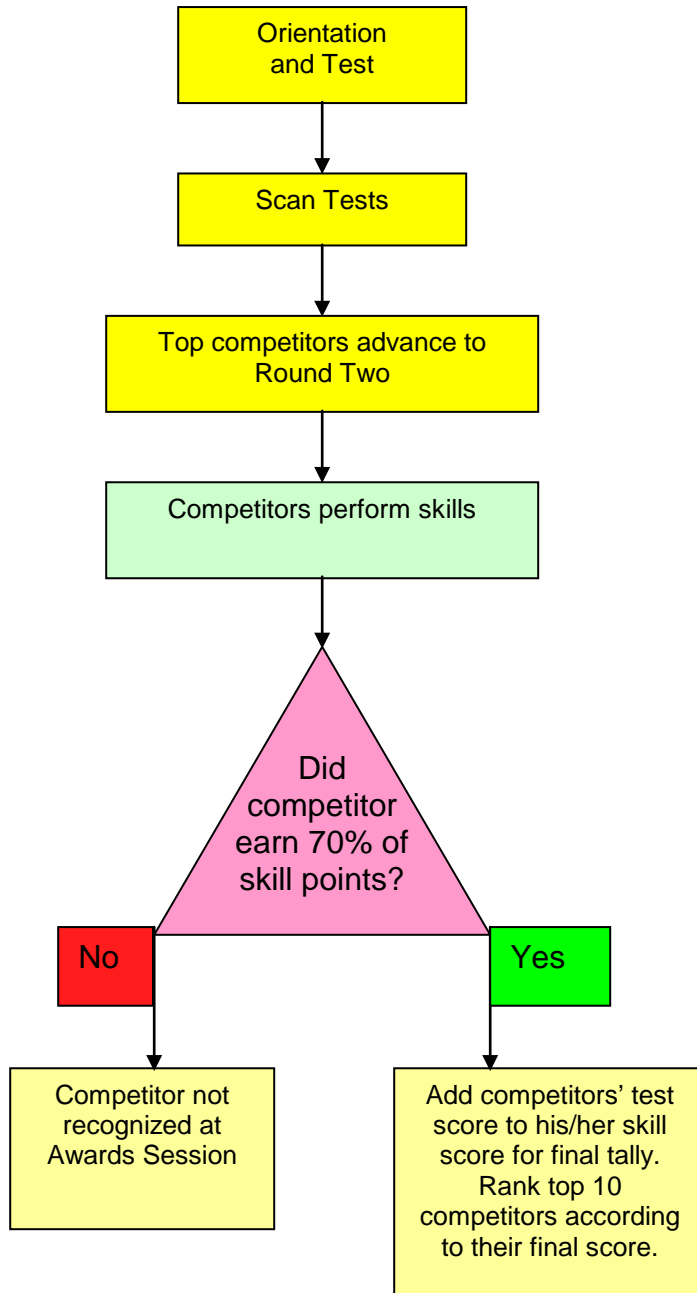
1. 15 Breed/Species pictures from resources
2. Answer Sheets
- *** 3. Pencils

Procedure VIII Apply/Remove Gauze Restraint Muzzle (Reference: (ARC Dog First Aid)

- ***
1. 2 - 4 –Foot-Long of Gauze (18 inches or longer”)
 2. Canine Mannequin
 3. Alcohol-based handrub
 4. Bandage scissors

*** Must be provided by student competitor

Event Flow Chart



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Competitor #: _____ Judge's Signature: _____

Procedure I	Preparation of the Operative Site (Time: 6 minutes)	Possible	Awarded
1.	Used alcohol-based handrub for hand hygiene.	1	
2.	Verified the patient's identity, surgical procedure being performed, and surgical site.	2	
3.	Checked progress notes to assure that patient was bathed and surgical site clipped and scrubbed.	2	
4.	Assembled materials for prep.	1	
5.	Positioned patient on back and secured legs with tape.	2	
6.	Verbalized expression of urine from bladder.	2	
7.	Opened sterile packages: bowl and gauze using aseptic technique.	2	
8.	Dropped four (4) gauze sponges into a sterile bowl and then poured germicide to cover sponges, using aseptic technique.	3	
9.	Donned sterile gloves correctly.	3	
10.	Used sterile forceps and one gauze (transferred from the less dominant hand to the dominant hand), began at incision site and cleansed using concentric circles at least 2 inches larger than the expected size of the sterile field needed, and discarded sponge after reaching periphery.	4	
11.	Repeated step #10 two more times.	4	
12.	Blotted excess germicide solution with sterile gauze sponge.	2	
13.	Sprayed 10% Povidone Iodine solution on site.	2	
14.	Removed gloves and used alcohol-based handrub for hand hygiene	2	
TOTAL POINTS -- PROCEDURE I		32	

***If a competitor jeopardizes the patient's or his/her own safety or fails to perform a critical step and does not take immediate action to correct the error, the total points for the procedure or specific subpart(s) of the procedure will be deducted by the judge(s).*

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Competitor #: _____ Judge's Signature: _____

Note: In this procedure, the competitor will lift a small dog, and then will also lift a medium-sized dog. He/she will verbalize the process for lifting a large dog. Simulation of the cephalic venipuncture will be done on the medium dog.

Procedure II	Lifting and Restraining a Dog (Time: 4 minutes)	Possible	Awarded
1.	Used alcohol-based handrub for hand hygiene	2	
2.	Spoke to animal in calm, affectionate tone throughout procedure.	2	
3.	Lifted the small dog onto the table, holding the dog draped over a forearm with the other hand holding on to the head just below the mandible.	2	
4.	Lifted the small dog off the table and back to the floor, using correct body mechanics and lifting technique.	2	
5.	Lifted the medium-sized dog onto the table, with one arm around the neck and the other arm around the rear end.	2	
6.	Held the medium-sized dog in a standing position by placing one arm around the dog's neck and the other around the abdomen, and hugging the dog close to the body.	2	
7.	Verbalized the proper technique for lifting a large dog.	2	
	* Judge states <i>"Place the dog in a sitting position for a cephalic venipuncture."</i>	-	
8.	Placed animal on the table near one end, facing the edge, in the sitting position.	3	
9.	Restrained the animal's head by reaching under the neck, placing the hand behind the jaw and pressing the animal's head against the person's chest.	4	
10.	Used other arm to reach around rear of the dog and pull dog close to the body.	2	
11.	Moved arm that was holding the rear across the shoulders and grasped the leg opposite his/her body.	2	
12.	Held the leg by placing the elbow of the dog into the palm of that hand and pushing the leg forward.	3	
13.	Placed thumb on top of the leg, squeezing and rotating laterally, to occlude the vein. * Judge will verbalize venipuncture and when blood is drawn.	3	
14.	Released thumb after the blood was drawn.	3	
15.	Used alcohol-based handrub for hand hygiene.	2	
TOTAL POINTS -- PROCEDURE II		36	

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Competitor #: _____ Judge's Signature: _____

Procedure IV Simple Fecal Floatation (Time: 5 minutes)	Possible	Awarded
1. Used alcohol-based handrub for hand hygiene	2	
2. Applied latex gloves.	1	
3. Assembled equipment and supplies.	2	
4. Placed approximately 2 – 5 g of feces in a paper cup.	2	
5. Add 30 ml of floatation solution.	2	
6. Using the tongue depressor, mix the feces to produce an evenly suspended emulsion.	2	
7. Poured the suspension through a 10 cm (4"x4") gauze square into another cup.	2	
8. Filled the shell vial (or 15 ml conical centrifuge tube) with the filtered solution to form a convex dome (meniscus) at the rim.	2	
9. Placed a cover slip on top of the meniscus.	3	
10. Verbalized leaving the cover slip in place for 10 – 20 minutes.	1	
11. Picked the cover slip straight up and placed on a glass slide, fluid side down.	2	
12. Removed gloves and used alcohol-based handrub for hand hygiene.	2	
TOTAL POINTS – PROCEDURE IV	23	

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Competitor # _____ Judge's Signature _____

**Procedure V: Identification of Parasites
(Time: 10 Minutes)**

Identify each parasite as numbered. One point will be awarded for correct identification, one point for genus/species or phyla, and one point awarded for correct spelling. (30 points)

Label #	Parasite	Genus/species or phyla	Correct Spelling ✓
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

* Note: Both the parasite and genus/species or phyla must be correctly identified and spelled correctly to earn the spelling point.

TOTAL POINTS - PROCEDURE V _____

VETERINARY SCIENCE PROCEDURE V

PARASITE LIST

Given a microscope and slides or pictures, competitors should be able to identify each parasite on this list and identify the genus and species for the first ten or the phyla for the tick, flea, louse and fluke.

- Hookworm eggs *Ancylostoma caninum*
- Tapeworm eggs *Dipylidium caninum*
- Roundworm eggs *Toxocara canis*
- Whipworm eggs *Trichuris vulpis*
- Heartworm *Dirofilaria immitis*
- Pinworm *Oxyuris equi*
- Segment of tapeworm *Dipylidium canium*
- Mites (Mange) *Demodex canis*
- Mites (Scabies) *Sarcoptes scabiei*
- Mites (Ear mites) *Otodectes cynotis*
- Tick Arthropoda (phyla)
- Flea Arthropoda (phyla)
- Louse Arthropoda (phyla)
- Fluke Platyhelminthes (phyla)

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Competitor #: _____ Judge's Signature: _____

Procedure VI	Canine Cardiopulmonary Resuscitation (Small-Sized Dog) (Time: 4 Minutes)	Possible	Awarded
1.	Surveyed the scene and inspected the area	2	
2.	Determined unresponsiveness * Judge states "Dog is unconscious."	2	
3.	Laid animal down on the right side	2	
4.	Gently tilted the head slightly back to extend the neck and head	2	
5.	Pulled tongue between front teeth	2	
6.	Performed finger sweep to check for and remove any foreign material or vomit from the mouth	2	
7.	Checked for breathing (looked, listened, felt) * Judge states, "Not breathing."	2	
8.	Placed mouth (simulated) over animal's snout and forcefully exhaled, giving four or five breaths rapidly.	4	
9.	Rechecked breathing and checked for heartbeat or femoral pulse * Judge states, "Not breathing, no heartbeat."	2	
10.	Kneeled next to pet with animal's chest facing the rescuer	2	
11.	Placed the palm of one hand over the ribs at the point where the elbow touches the chest, placing the other hand underneath the right side of the animal	2	
12.	Compressed the chest ½ - 1" with elbows softly locked during compressions, alternating 5 compressions for each breath	4	
13.	Performed 4 cycles of 5 compressions to one breath, then checked for pulse * Judge states, "Pulse detected, still not breathing."	2	
14.	Delivered 5 more breaths (simulated) at a rate of 20-30 breaths per minute, then rechecked breathing * Judge states, "Dog is breathing"	2	
15.	Treated for shock. a. Wrapped the dog in a blanket b. Spoke reassuringly to dog	1 1	
16.	Said, "Dog is stable: transport to hospital."	2	
Total Points – Procedure VI		36	

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Competitor # _____ Judge's Signature _____

**Procedure VII: Identification of Companion Animal Breeds/Species
(Time: 8 Minutes)**

Identify each canine/feline breed species as numbered. One point will be awarded for correct identification and one point awarded for correct spelling. (30 points)

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.
- 15.

TOTAL POINTS - PROCEDURE VII _____

VETERINARY SCIENCE PROCEDURE VII

CAT BREED LIST

- Abyssinian
- American Curl
- American Shorthair
- American Wirehair
- Balinese
- Birman
- British Shorthair
- Burmese
- Cornish Rex
- Devon Rex
- Exotic
- Havana Brown
- Japanese Bobtail
- Korat
- Maine Coon Cat
- Manx
- Norwegian Forest Cat
- Ocicat
- Oriental
- Persian
- Ragdoll
- Russian Blue
- Scottish Fold
- Siamese
- Singapura
- Somali
- Sphynx
- Tonkinese
- Turkish Angora
- Turkish Van

CANINE BREED LIST

Sporting Dogs

- Brittany
- Pointer
- Pointer, German Shorthaired
- Pointer, German Wirehaired
- Retriever, Chesapeake Bay
- Retriever, Curly-Coated
- Retriever, Flat-Coated
- Retriever, Golden
- Retriever, Labrador
- Setter, English
- Setter, Gordon
- Setter, Irish
- Spaniel, American Water
- Spaniel, Clumber
- Spaniel, Cocker
- Spaniel, English Cocker
- Spaniel, Field
- Spaniel, Irish Water
- Spaniel, Sussex
- Spaniel, Welsh Springer
- Vizsla
- Weimaraner
- Wirehaired Pointing Griffon

Hounds

- Afghan Hound
- Basenji
- Basset Hound
- Beagle
- Black and Tan Coonhound
- Borzoi
- Dachshund
- Foxhound, American
- Greyhound
- Harrier
- Ibizan Hound
- Irish Wolfhound
- Norwegian Elkhound
- Otterhound
- Petit Basset Griffon Vendeen
- Pharaoh Hound
- Rhodesian Ridgeback
- Saluki
- Scottish Deerhound
- Whippet

Non-Sporting Dogs

- Bichon Frise
- Boston Terrier
- Bulldog
- Chinese Shar-Pei
- Chow Chow
- Dalmatian
- Finnish Spitz
- French Bulldog
- Keeshond
- Lhasa Apso
- Poodle
- Schipperke
- Tibetan Spaniel
- Tibetan Terrier

Herding Dogs

- Australian Cattle Dog
- Border Collie
- Belgian Malinois
- Bouvier des Flanders
- Briard
- Collie
- German Shepherd
- Old English Sheepdog
- Puli
- Shetland Sheepdog
- Welsh Corgi, Cardigan
- Welsh Corgi, Pembroke

Toys

- Affenpinscher
- Brussels Griffon
- Chihuahua
- Chinese Crested
- English Toy Spaniel
- Italian Greyhound
- Japanese Chin
- Maltese
- Manchester Terrier (Toy)
- Miniature Pinscher
- Papillon
- Pekingese
- Pomeranian
- Poodle (Toy)
- Pug
- Shih Tzu
- Silky Terrier
- Yorkshire Terrier

Working Dogs

- Akita
- Alaskan Malamute
- Bernese Mountain Dog
- Boxer
- Bullmastiff
- Doberman Pincher
- Giant Schnauzer
- Great Dane
- Great Pyrenees
- Komondor
- Kuvasz
- Mastiff
- Newfoundland
- Portuguese Water Dog
- Rottweiler
- Saint Bernard
- Samoyed
- Siberian Husky
- Standard Schnauzer

Terriers

- Airedale Terrier
- American Staffordshire Terrier
- Australian Terrier
- Bedlington Terrier
- Border Terrier
- Bull Terrier
- Cairn Terrier
- Dandie Dinmont Terrier
- Fox Terrier, Smooth
- Kerry Blue Terrier
- Lakeland Terrier
- Manchester Terrier
- Miniature Schnauzer
- Miniature Bull Terrier
- Norfolk Terrier
- Norwich Terrier
- Sealyham Terrier
- Soft Coated Wheaten Terrier
- Staffordshire Bull Terrier
- Welsh Terrier
- West Highland White Terrier

VETERINARY SCIENCE

Competitor #: _____

Judge's Signature: _____

Procedure VIII Apply/Remove Gauze Restraint Muzzle (Time: 3 minutes)	Possible	Awarded
1. Used alcohol-based handrub for hand hygiene.	1	
2. Assembled supplies.	1	
3. Spoke to dog in calm, affectionate tone throughout procedure.	2	
4. Used an 18" or longer piece of gauze and placed a knot in the middle of the material to serve as an anchor.	2	
5. Made a loop large enough to drop over the dog's nose.	1	
6. Kept enough distance from the dog's mouth to avoid being bitten, and slipped the loop over the dog's nose from above and behind his head.	2	
7. Tightened the loop down on top of the nose, but not so tight it obstructed the dog's breathing.	2	
8. Pulled an end of the gauze down each side of the face, crisscrossed it under the chin, and brought the ends back behind the ears.	3	
9. Tied the loose ends in a bow behind the ears.	2	
10. Kept hand scissors close by in case the muzzle must be quickly cut off.	1	
11. Used alcohol-based handrub for hand hygiene.	1	
TOTAL POINTS – PROCEDURE VIII	18	

***If a competitor jeopardizes the patient's or his/her own safety or fails to perform a critical step and does not take immediate action to correct the error, the total points for the procedure or specific subpart(s) of the procedure will be deducted by the judge(s).*