

# Dental Science

## ***New for 2020-2021***

Competitor orientation deleted from ILC.  
Rating sheet has been updated.

### **Event Summary**

Dental Science provides members with the opportunity to gain knowledge and skills required for dental careers. This competitive event consists of 2 rounds. Round One is a written, multiple choice test and the top scoring competitors will advance to Round Two for the skills assessment. This event aims to inspire members to learn more about careers in the dental field.

**Dress Code** Competitors shall wear proper business attire or official HOSA uniform, or attire appropriate to the occupational area, during both rounds. Bonus points will be awarded for [proper dress](#).

- General Rules**
1. Competitors in this event must be active members of HOSA and in good standing
  2. Secondary and Postsecondary/Collegiate divisions are eligible to compete in this event.
  3. Competitors must be familiar with and adhere to the [“General Rules and Regulations of the HOSA Competitive Events Program \(GRR\).”](#)
  4. All competitors shall report to the site of the event at the time designated for each round of competition. At ILC, competitor’s [photo ID](#) must be presented prior to ALL competition rounds.

### **Official References**

5. All official references are used in the development of the written test and skill rating sheets.
  - [Boyd, Linda. Dental Instruments: A Pocket Guide. Saunders, latest edition.](#)
  - [Phinney & Halstead. Dental Assisting: A Comprehensive Approach. Cengage, latest edition.](#)

### **Round One Test**

6. [Test Instructions](#): The written test will consist of 50 multiple choice items in a maximum of 60 minutes.
7. **Time Remaining Announcements**: There will be a verbal announcement when there are 30 minutes, 15 minutes, 5 minutes, and 1 minute remaining to complete the test.

**8. Written Test Plan**

The Dental Team and History .....	10%
Oral Health and Nutrition .....	5%
General Anatomy and Physiology .....	15%
Head and Neck Anatomy .....	10%
Tooth Morphology .....	10%
Infection Control.....	15%
Chairside Assisting/Instruments .....	15%
Radiology .....	10%
Emergency Management.....	10%

9. The test score from Round One will be used to qualify the competitor for the Round Two.

**10. Sample Round One Test Questions**

1. What is the term for the area where two bones fused to form the mandible?  
A. Condyles  
B. Ramus  
C. Coronoid notch  
**D. Symphysis**  
Phinney pp 118
2. Which instrument is best suited for examining teeth for caries, calculus, furcations or other abnormalities?  
A. Dull chisel  
B. Ball burnisher  
**C. Explorer**  
D. Scalpel  
Boyd pp 5
3. What does the rheostat in the dental unit control?  
A. Air-water syringe.  
**B. Speed of the handpiece.**  
C. Position of the head of the dental chair.  
D. Overhead lights.  
Phinney pp 366

**Round Two Skills**

11. Round Two is the performance of a selected skill(s). The Round Two skills approved for this event are:

Skill I:	Preparing the Dental Treatment Room and Anesthetic Syringe	(5 minutes)
Skill II:	Seating the Dental Patient	(8 minutes)
Skill III:	Dismissing the Dental Patient	(5 minutes)
Skill IV:	Patient Education: Brushing and Flossing	(6 minutes)
Skill V:	Preparing for an Alginate Impression	(7 minutes)
Skill VI:	Identify Instruments/Equipment	(15 minutes)

*(Including name of instrument and purpose or use)*

15 instruments or photos from the following list:

Amalgam Carrier – Double Ended	Carvers- Discoid-Cleoid	Forceps- Mandibular Universal – Cryer 151	Round Bur
Amalgam Carrier – Single Ended	Carvers - Hollenback	Forceps- Maxillary Universal – Cryer 150	Scaler – Curved Sickle
Amalgam Condenser	Composite Placement Instruments	Handpieces -Fiberoptic High-Speed	Scaler – Straight Sickle
Amalgam Well	Cotton Forceps (pliers)	Handpieces – High-Speed	Scissors – Crown & Bridge
Anesthetic Aspirating Syringe	Curing Light	Handpieces – Slow Speed with Contra Angle Attachment	Scissors – Suture
Articulating Paper Holder	Dental Dam Forceps	Handpieces – Slow Speed with Prophy Angle Attachment	Spoon Excavator
Bird Beak Pliers	Dental Dam Punch	Hemostat	Tongue & Cheek Retractor
Bite-Wing Tabs	Diamond Bur - Flame	Howe (or How) Pliers	Universal Clamps – Mandibular (Winged Clamp)
Bone File	Elevators - Periosteal	Inverted Cone Bur	Universal Clamps – Mandibular (Wingless Clamp)
Burnisher - Ball	Elevators – Root-Tip	Liner Applicator	Universal Clamps – Maxillary (Winged Clamp)
Burnisher - Football	Elevators - Straight	Mouth Mirror	Universal Clamps – Maxillary (Wingless Clamp)
Burnisher – T- Ball	Endodontic Explorer	Pear-Shaped Bur	Universal Matrix Band
Burnisher Acorn	Evacuation Tip High-Volume (velocity)	Periodontal Probe	Woodson
Burs	Finishing Bur	Rongeurs	

**Skill VII: Treating Contaminated Tray in the Sterilization Center**

*(6 minutes)*

12. The selected Skill(s) will be presented to competitors as a written scenario at the beginning of the round. 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. A sample scenario can be found [here](#).
13. Timing will begin when the scenario is presented to the team and competitors will be stopped at the end of the time allowed.
14. The scenario is a secret topic. Competitors MAY NOT discuss or reveal the secret topic until after the event has concluded or will face penalties per [the GRRs](#).
15. Judges will provide information to competitors as directed by the rating sheets. Competitors may ask questions of the judges while performing skills if the questions relate to patient physiology and will be included in the scenario.

**Final Scoring**

16. The competitor must earn a score of 70% or higher on the combined skill(s) of the event (excluding the test and ID instruments) in order to be recognized as an award winner at the ILC.
17. Final rank is determined by adding the round one test score plus round two skill score. In case of a tie, the highest test score will be used to determine the rank.

**Competitors Must Provide:**

- Two #2 lead pencils with eraser
- Watch with second hand (optional-Round Two only)
- Mask
- Disposable non-latex gloves, overgloves, and utility gloves
- Disposable mask and gown
- Protective eyewear
- A [photo ID](#)

# DENTAL SCIENCE

Competitor #: \_\_\_\_\_

Judge's Signature: \_\_\_\_\_

<b>Skill I Preparing the Dental Treatment Room and Anesthetic Syringe (Time: 5 minutes)</b>	<b>Possible</b>	<b>Awarded</b>
1. Washed hands or used alcohol-based handrub for hand hygiene.	1 0	
2. Assembled equipment and selected the correct disposable needle and anesthetic the dentist has specified for this skill.(scenario)	2 0	
3. Reviewed the patient's medical and dental history, placed the radiographs in the viewbox, and verbalized the skill to be completed at this visit.	2 0	
4. Placed patient's medical and dental history in a plastic envelope barrier or under a surface barrier.	1 0	
5. Placed new barriers on dental chair, dental unit handpieces, hoses, light switches and controls, and any other potential possible surfaces that can be contaminated.	2 0	
6. Positioned the instrument tray with packaged sterile instruments in the operatory.	1 0	
7. Placed the patient's napkin, napkin chain and protective eyewear.	1 0	
<b><i>The following steps are for a right-handed person and should be modified for a left-handed person.</i></b>		
8. Removed the syringe from the autoclave bag or pouch, and inspected it to be sure it is ready to use.	1 0	
9. Held the syringe in the left hand and used the thumb ring to fully retract the piston rod.	1 0	
10. Placed the cartridge in the barrel of the syringe and released the piston rod when the cartridge was in place.	1 0	
11. With moderate pressure, safely pushed the piston rod into the rubber stopper until it was fully engaged.	1 0	
12. Removed the protective plastic cap from the syringe end of the needle. Screwed or pressed the needle into the syringe.	1 0	
13. Placed the prepared anesthetic syringe and a recapping device on the tray.	1 0	
<b>TOTAL POINTS - SKILL I</b> <b>70% Mastery for Skill I = 11.2</b>	<b>16</b>	

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

# DENTAL SCIENCE

Competitor #: \_\_\_\_\_

Judge's Signature: \_\_\_\_\_

<b>Skill II:</b>	<b>Seating the Dental Patient (Time: 8 minutes)</b>	<b>Possible</b>		<b>Awarded</b>
1.	Entered reception area and greeted patient by name.	1	0	
2.	Introduced self.	1	0	
3.	Escorted patient to treatment room.	1	0	
4.	Showed patient where to place personal articles (coat, briefcase, etc.) if needed.	1	0	
5.	Seated the patient in the dental chair and invited the patient to sit all the way back in the chair.	1	0	
6.	If necessary, offered patient tissue to remove lipstick and asked if he/she would like lubricant for his/her lips.	1	0	
7.	Placed drape and/or bib on patient and gave the patient safety and glasses to wear during skill.	2	0	
8.	Reviewed patient's medical history for any changes since his/her last visit.	1	0	
9.	Asked the patient if he/she has any questions and gave a brief confirmation of the dental treatment to be completed at this appointment.	2	0	
10.	Placed x-rays in viewbox.	1	0	
11.	Positioned the patient for treatment, adjusted the headrest, and adjusted the dental light for the appropriate arch.	2	0	
12.	Positioned the operator's stool and the rheostat.	1	0	
13.	Positioned the assistant's stool.	1	0	
14.	Put on mask and protective eyewear.	1	0	
15.	Washed hands or used alcohol-based handrub for hand hygiene.	1	0	
16.	Donned gloves before being seated at chairside.	1	0	
17.	Positioned the tray set-up. Prepared the saliva ejector, evacuator tip, air-water (three-way) syringe tip, and dental handpieces.	2	0	
18.	Appropriate verbal and nonverbal communication with patient and other personnel.	2	0	
<b>TOTAL POINTS - SKILL II</b>		<b>23</b>		
<b>70% Mastery for Skill II = 16.1</b>				

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# DENTAL SCIENCE

Competitor #: \_\_\_\_\_

Judge's Signature: \_\_\_\_\_

<b>Skill III: Dismissing the Dental Patient (Time: 5 minutes)</b>	<b>Possible</b>	<b>Awarded</b>
1. * <b><i>Judge verbalizes that the dentist has completed the procedure, turned out the light, and left the operatory.</i></b>	-	
2. Positioned the dental light out of the patient's way and thoroughly rinsed and evacuated the patient's mouth.	2      0	
3. Returned the patient to an upright position and removed any debris from the patient's face.	1      0	
4. Removed the patient's soiled bib and placed it face down over the contaminated tray setup.	1      0	
5. Removed the HVE tip, saliva ejector and air-water syringe tip.	2      0	
6. Positioned the dental light, operator's stool and rheostat out of the patient's way.	1      0	
7. Removed the treatment gloves and washed hands or used alcohol-based handrub for hand hygiene, <b>OR</b> donned overgloves.	1      0	
8. Documented the procedure on the patient's chart, then gathered the patient's chart and radiographs.	2      0	
9. Gave postoperative instructions to the patient.	2      0	
10. Returned the patient's personal items and escorted the patient to the reception area.	1      0	
11. Appropriate verbal and nonverbal communication with patient and other personnel.	2      0	
<b>TOTAL POINTS - SKILL III</b> <b>70% Mastery for Skill III = 10.5</b>	<b>15</b>	

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

# DENTAL SCIENCE

Competitor #: \_\_\_\_\_

Judge's Signature: \_\_\_\_\_

<b>Skill IV: Patient Education: Brushing and Flossing (Time: 6 minutes)</b>	<b>Possible</b>		<b>Awarded</b>
1. Assembled equipment.	1	0	
2. Washed hands or used alcohol-based handrub for hand hygiene.	1	0	
3. Greeted patient and introduced self.	1	0	
4. Explained skill to be demonstrated.	1	0	
<b><i>Instructed patient (patient could be a judge or someone else) on the following brushing and flossing techniques using the typodont to demonstrate the steps.</i></b>	-		
5. Grasped the toothbrush and placed it so that the bristles are at a 45-degree angle, with the tips of the bristles directed straight into the gingival sulcus of the typodont.	1	0	
6. Using the tips of the bristles, vibrated back and forth with short, light strokes for a count of 10, allowing the tips of the bristle to enter the sulcus and cover the gingival margin.	2	0	
7. Lifted the brush and continued into the next area or group of teeth until all areas have been cleaned.	2	0	
8. Used the toe bristles of the brush to clean the lingual (tongue) anterior area in the arch.	1	0	
9. Dispensed 18 inches of dental floss.	1	0	
10. Wrapped the ends of the floss around the middle or ring fingers as anchors.	1	0	
11. Grasped the floss between the thumb and index finger of each hand, allowing ½ to 1" to remain between the two hands.	1	0	
12. For the maxillary teeth, passed the floss over the two thumbs or a thumb and finger, and directed the floss upward.	1	0	
13. For the mandibular teeth, passed the floss over the two index fingers and glided it downward.	1	0	

Items Evaluated	Possible	Awarded
14. Directed the floss to pass gently between the teeth, using a sawing motion. Tried not to snap the floss through the contacts because it may damage the interdental papilla.	2 0	
15. Curved the floss in a C-shape to wrap it around the tooth and allow access into the sulcus area.	1 0	
16. Moved the floss gently up and down the surface of the tooth to remove the plaque.	1 0	
17. Lifted slightly and wrapped the floss in the opposite direction in a C-shape over the adjacent tooth.	1 0	
18. Moved the floss gently up and down the surface of this tooth prior to removing it from the area.	1 0	
19. Rotated the floss on the fingers to allow for a fresh section to be used each time, and continued to clean between every tooth.	2 0	
20. Explained to the patient that it does not matter where an individual begins with floss, but it is best to proceed in a systematic method to ensure that no area is missed.	1 0	
21. Used the dental floss around the distal surface of the most posterior tooth by wrapping it in a tight C-shape and moving it gently up and down with a firm pressure.	1 0	
22. Explained each step clearly and succinctly in language the patient could understand.	2 0	
23. Adapted instruction based on patient's special needs (If any were indicated in the scenario.)	2 0	
24. Appropriate verbal and nonverbal communication with patient and other personnel.	2 0	
25. Replaced equipment and washed hands or used alcohol-based handrub for hand hygiene.	1 0	
<b>TOTAL POINTS - SKILL IV</b> <b>70% Mastery for Skill IV = 22.4</b>	<b>32</b>	

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# DENTAL SCIENCE

Competitor #: \_\_\_\_\_

Judge's Signature: \_\_\_\_\_

<b>Skill V: Preparing for an Alginate Impression (Time: 7 minutes)</b>	<b>Possible</b>	<b>Awarded</b>
1. Assembled materials.	1	0
2. Placed mask over mouth and nose.	1	0
3. Applied protective eyewear and gown.	1	0
4. Washed hands or used alcohol-based handrub for hand hygiene.	1	0
5. Put on gloves.	1	0
6. Measured water for impression.	1	0
7. Placed water in the flexible mixing bowl.	1	0
8. Fluffed the powder prior to opening the powder canister, if the manufacturer's directions indicate.	1	0
9. Filled the measure of powder by overfilling and then leveling off with flat blade of the spatula.	1	0
10. Placed corresponding scoops into a second flexible rubber bowl.	1	0
11. Placed the powder in the water.	1	0
12. Mixed the water and powder first with a stirring motion.	1	0
13. Then, mixed by holding the bowl in one hand, rotating the bowl occasionally, and using the flat side of the spatula to incorporate the material through pressure against the side of the bowl.	3	0
14. Stopped until mixture is homogeneous and creamy.	2	0
15. Loading mixture into impression trays.		
a. Used the flat side of the blade to condense the material firmly into the tray.	1	0
b. Further smoothed the surface with a moistened glove hand.	1	0
16. Verbalized handing trays to dentist to take the impressions. <b><i>*Judge will simulate or take the impression on the typodont, and then hand the impression back to the competitor.</i></b>	1	0
17. Rinsed the impression gently under tap water to remove any debris.	1	0
18. Sprayed the impression with disinfectant.	1	0
19. Labeled a plastic bag with the patient's name.	2	0
20. Wrapped the impression in a moist paper towel and placed in the labeled bag.	1	0
21. Cleaned the bowls and spatula, wiped down the counter and put away supplies.	2	0
<b>TOTAL POINTS - SKILL V</b> <b>70% Mastery for Skill V = 18.9</b>	<b>27</b>	

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# DENTAL SCIENCE

## SKILL VI: IDENTIFYING DENTAL INSTRUMENTS

Time = 15 minutes

Competitor ID #: \_\_\_\_\_ Judge's Initials: \_\_\_\_\_ Total Points (45 poss.) \_\_\_\_\_

	Name of Instrument	Points (1 each for name & spelling)	Purpose or Use	Points (1 point for correct purpose/use)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
<b>TOTAL: ID &amp; Spelling (30 poss)</b>			<b>TOTAL: Purpose (15 poss.)</b>	

## DENTAL SCIENCE

Competitor #: \_\_\_\_\_ Judge's Signature: \_\_\_\_\_

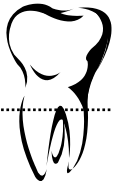
*\*This skill presumes that the treatment of the contaminated tray will immediately follow the dental treatment.*

<b>Skill VII Treatment of Contaminated Tray in the Sterilization Center (Time: 6 minutes)</b>	<b>Possible</b>	<b>Awarded</b>
1. Washed hands or used alcohol-based handrub for hand hygiene.	1 0	
2. Donned utility gloves and appropriate PPE.	2 0	
3. Safely disposed of sharps in the sharps container.	1 0	
4. Discarded visibly contaminated disposable items in a biohazard receptacle.	1 0	
5. Placed instruments in the ultrasonic cleaner <i>(can be simulated)</i>	1 0	
a. Instruments placed directly in the ultrasonic basket with burs, dental dam clamps, and other small items secured in a small strainer.	1 0	
b. Carefully lowered the basket of instruments into the ultrasonic cleaner without splashing.	1 0	
c. Placed cover on the ultrasonic cleaner and activated a 10-minute cycle.	1 0	
6. Prepared the dental high-speed handpiece:	1 0	
a. Rinsed and dried or wiped with isopropyl alcohol.	1 0	
b. Lubricated	1 0	
c. Bagged in an instrument pouch with indicator tape and placed in sterilizer.	1 0	
<b><i>Judge verbalizes that items have been in the ultrasonic cleaner for 10 minutes.</i></b>	-	
7. Removed the basket containing the instruments from the ultrasonic unit and rinsed the instruments thoroughly under running water while still in the basket. <i>(can be simulated)</i>	1 0	
8. Carefully emptied the basket of rinsed instruments onto a prepared towel and arranged in a single layer. <i>(can be simulated)</i>	1 0	
9. Towel-dried the instruments by blotting them lightly with a dry towel Placed the dried instruments into a bag or pouch and placed them into a container for sterilization at a later time.	2 0	
10. Sprayed, then wiped the tray and any other items with disinfectant, and then sprayed again.	1 0	
11. Cleaned up and disinfected the work area.	1 0	
12. Washed, removed and disinfected the utility gloves.	1 0	
13. Removed PPE and washed hands or used alcohol-based handrub for hand hygiene.	2 0	
<b>TOTAL POINTS - SKILL VII</b> <b>70% Mastery for Skill VII = 14</b>	<b>20</b>	

<sup>1</sup> If needed, the ultrasonic unit can be simulated.

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COMPETITOR ID # \_\_\_\_\_



## HOSA Dental Clinic

### Patient Registration Information

#### Personal Profile

First Name \_\_\_\_\_ Middle Initial \_\_\_\_ Last Name \_\_\_\_\_

Date of Birth \_\_\_\_\_ Gender \_\_\_\_\_

Address \_\_\_\_\_

Home Phone \_\_\_\_\_ E-mail \_\_\_\_\_

Name of Employer \_\_\_\_\_

Occupation \_\_\_\_\_ Work Phone \_\_\_\_\_

#### Account Information

Responsible Party \_\_\_\_\_

Address \_\_\_\_\_

Home Phone \_\_\_\_\_ Work Phone \_\_\_\_\_

#### Primary Insurance

Company \_\_\_\_\_

Address and Phone # \_\_\_\_\_

Account # \_\_\_\_\_ Group # \_\_\_\_\_

#### Emergency Contact Information

Name \_\_\_\_\_ Relationship \_\_\_\_\_

Home Phone \_\_\_\_\_ Work Phone \_\_\_\_\_

Cell Phone \_\_\_\_\_ E-mail \_\_\_\_\_

COMPETITOR ID # \_\_\_\_\_



**HOSA Dental Clinic  
Health History**

Date \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

Home Phone \_\_\_\_\_ Business Phone \_\_\_\_\_

**PLEASE ANSWER EACH QUESTION:**

1. Have you been hospitalized in the past two years? Yes No
2. Are you taking any medications? (If yes, please list) Yes No

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Are you allergic to any medications? (If yes, please list) Yes No

\_\_\_\_\_  
\_\_\_\_\_

4. Circle any of the following you have had:

Heart trouble	Asthma	Arthritis
High blood pressure	Jaundice	Epilepsy
Stroke	Bleeding disorder	Diabetes

5. Have you had any other serious illnesses? Yes No
6. Are you pregnant? Yes No

Comments:

Reviewed by _____	Date _____
Reviewed by _____	Date _____
Reviewed by _____	Date _____
Reviewed by _____	Date _____

- Date and initial any changes.

COMPETITOR ID # \_\_\_\_\_



## Saturn Dental Clinic Informed Consent

I understand that the information that I have given today is correct to the best of my knowledge. I also understand that it is my responsibility to inform this office of any changes in my medical status. I authorize the dental staff to perform necessary dental services, such as x-rays, models, photographs, or any other diagnostic aids deemed appropriate by the dentist. I authorize the dentist and his/her employees to provide medical and therapy with my informed consent in connection with my diagnosis and treatment plan. Even though I may have dental insurance, I understand payment for services rendered is my responsibility. It is my understanding that payment is due at the time of service unless other financial arrangements have been made.

Patient Signature \_\_\_\_\_ Date \_\_\_\_\_

Witness \_\_\_\_\_ Date \_\_\_\_\_



## HIPAA Disclosure Acknowledge of Receipt of Privacy Policy Notice

I, \_\_\_\_\_, acknowledge that I have received a Notice of Privacy Policies from Saturn Dental Clinic.

Patient Signature \_\_\_\_\_ Date \_\_\_\_\_

Witness \_\_\_\_\_ Date \_\_\_\_\_

