EVENT FOCUS:
These apply only to DeKalb’s Elementary Tournament for 2015.
The description for Disease Detectives covers a lot of territory even for the elementary grade (Level A) Science Olympiad event. At our DeKalb County Tournament, we will focus on:

- food-borne illnesses and their causes;
- well-established environmental and behavioral causes of disease;
- injury classification and prevention;
- body systems and anatomical descriptions.

We typically test the students’ ability to interpret diagrams, posters, physical models, and replicas to answer questions related to the categories above. Your student should expect to demonstrate basic science and math skills appropriate for this age level, for example, measure the length of an identified object in cm using a ruler we provide, or calculate the average of 2 or 3 integers by hand or with a calculator.

PARENT and TEACHER ADVISORY NOTE:
Parents and teachers should plan to work directly with students while preparing for this event when examining web sites and printed materials. It is well-known that many diseases are spread by behaviors that are not part of our event, STDs or STIs, for example. As a result, web sites that provide age-appropriate information about the details of various food-borne pathogens often link naturally and quickly to other pages containing material that most parents would consider not age appropriate. In particular, this is often true of disease-related webpages produced by the US Centers for Disease Control and Prevention (CDC). Please keep this in mind as you work with your students.

USEFUL WORDS TO KNOW: Here are some representative words you should know.

<table>
<thead>
<tr>
<th>Outbreak</th>
<th>Communicable</th>
<th>Virus</th>
<th>Asthma</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidemic</td>
<td>Non-communicable</td>
<td>Pathogen</td>
<td>Influenza</td>
<td>Ratio</td>
</tr>
<tr>
<td>Contagious</td>
<td>Allergen</td>
<td>Bacteria</td>
<td>Tuberculosis</td>
<td>Fraction</td>
</tr>
<tr>
<td>Chronic</td>
<td>Congenital disorder</td>
<td>Germ</td>
<td>Fever</td>
<td>Comparison</td>
</tr>
<tr>
<td>Acute</td>
<td>Environmental toxin</td>
<td>Carcinogen</td>
<td>Cancer</td>
<td>Estimate</td>
</tr>
<tr>
<td>Vaccination</td>
<td>Disease vector</td>
<td>Mold</td>
<td>Rash</td>
<td>Likelihood</td>
</tr>
</tbody>
</table>
RULE CLARIFICATIONS: These apply only to DeKalb’s Elementary Tournament for 2015.

1. With the exception of major bones of the arm and leg, we do not use Latin names.

2. If a question or station requires a calculator, we will provide one with basic functions.

USEFUL THINGS TO TRY: Practice with your teacher or at home with a parent.

1. Help you parent or guardian prepare and cook a meal featuring different types of foods, such as vegetables and meats. Do the food-safety standards differ? See if you can make a list of recommended steps for each of the following when you are finished. (Need some hints? Check out the link to the posters later in this Tip!)
   
   (a) Hand-washing guidelines for the cook;
   (b) Surface preparation and cleaning before cooking;
   (c) Food storage concerns and cleaning prior to cooking;
   (d) Knife and utensil usage during and cleaning after cooking;
   (e) Kitchen and dish clean-up after eating;
   (f) Left-over storage issues and guidelines.

2. Think about activities you do often, such as riding your bike or playing a sport. How do you protect yourself from injury during these activities? If you get injured, what do you do to heal? See if you can identify two different injuries that seem likely to happen for each of the following:
   
   (a) Playing soccer;
   (b) Rock climbing;
   (c) Swimming in a friend’s back-yard pool;
   (d) Riding bikes on your street;
   (e) Toasting s’mores at a neighborhood campfire.

   When you are finished with your list, show it to your parents or another adult and ask if they can think any injuries that are more likely to occur than those you found.

3. The body has nine major systems. What is the function of each one? What are some common ailments of each system? What are your body’s natural mechanisms for fighting off common diseases?

4. Use the web sites below to identify the top 4 or 5 culprits in foodborne illness in the United States. For each of the causes, are there any types of foods that are more likely to have this contamination?

5. Research and identify diseases associated with the following environmental risk factors: radon gas, tobacco or tobacco smoke, ultraviolet light (UV radiation), mercury. Are any of these diseases you identified communicable?

6. List five structures or parts or your eye. Can you do it for your ear? Name two illnesses for each that are caused by bacteria or viruses. Name two disorders for each that are caused by environmental exposure or accidents.
7. Use the table below to find these answers. How many children went to the picnic? What percentage of students got sick? What fraction of the girls threw up that day?

<table>
<thead>
<tr>
<th>Gender of student</th>
<th>Symptom</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>None</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Vomited or regurgitated that day</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Diarrhea on following day</td>
<td>8</td>
</tr>
<tr>
<td>Female</td>
<td>None</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Vomited or regurgitated that day</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Diarrhea on following day</td>
<td>1</td>
</tr>
</tbody>
</table>

USEFUL WEBSITES TO SEE: We verified these in January, 2015.

http://kidshealth.org/kid/ill_injure/
http://www.foodsafety.gov/poisoning/
http://kidshealth.org/kid/watch/#cat115
http://www.cdc.gov/foodsafety/diseases/
http://homefoodsafety.org/quiz
http://www.enasco.com/page/FCS/fcs_kitchensafe_0712

(Nice kitchen safety quiz)
(Source of the posters below.)

Escherichia coli, courtesy of HowStuffWorks.com