SOUTH CAROLINA GEOGRAPHY – MAP EXPLORATION
(Each question is worth 5 points. Write in the correct response in the blank provided using blue ink. Use of Google Earth Recommended)

1. What island used during WWII as a bombing test site can be found at 34° 3'30.13"N 81°18'35.85"W?
   LUNCH OR BOMB ISLAND

2. This location in South Carolina has the highest altitude and can be found at 35° 3'53.18"N 82°46'38.49"W
   SASSAFRAS MOUNTAIN

3. One of two USMC recruit training facilities can be found at this location 32°19'44.11"N 80°41'41.19"W
   PARRIS ISLAND

4. This house was built in 1777 and was seized by British Troops in 1780 34°14'6.22"N 80°36'5.75"W
   KERSHAW-CORNWALLIS HOUSE

5. This location is named after the Native Americans that inhabited the area. 33°47' 43.7 "N 80°45'07.2"W?
   CONGAREE NATIONAL PARK

COLOR THAT REGION!
(Each region is worth 5 points. Color in the region with its corresponding color using the key below. 30 points total.)

- COASTAL ZONE
- OUTER COASTAL PLAIN
- INNER COASTAL PLAIN
- SANDHILLS
- PIEDMONT
- BLUE RIDGE
SOUTH CAROLINA STRUCTURES

FOR EACH STRUCTURE: GIVE ITS MEASUREMENTS (LENGTH/WIDTH/HEIGHT) IN METRIC
(Each question/blank is worth 5 points. Please write the correct answer in the space provided in blue ink)

Arthur Ravenel Jr. Bridge

HEIGHT 175 m

LENGTH 4.0 km or 4 000 m

Prysmian Copper Wire Tower

HEIGHT 114 m

Floors Above Ground 30

BASE 10
(Each question/blank is worth 10 points. Please write the correct answer in the space provided in blue ink)

1. What is 7,614 in expanded form \(7000+600+10+4\)

2. What number is this? 729

3. Convert the binary number 0100100101 to its base-10 primary number = 293
BIOLOGY/CHEMISTRY AND LIFE SCIENCES
(Each question/blank is worth 5 points. Please circle the correct answer or write the correct answer in the space provided in blue ink)

1. _____ are composed of two or more substances that are combined together but can also be separated from one another.
   A. Solutions  B. Mixtures  C. Solvent  D. Solute
   Mixtures are the result of a mechanical blending or mixing of chemical substances like elements and compounds, without chemical bonding or other chemical change, so that each ingredient substance retains its own chemical properties and makeup. [1] Despite that there are no chemical changes to its constituents, the physical properties of a mixture, such as its melting point, may differ from those of the components. Some mixtures can be separated into their components by physical (mechanical or thermal) means. Azotropes are one kind of mixture that usually pose considerable difficulties regarding the separation processes required to obtain their constituents (physical or chemical processes or, even a blend of them).

2. The substance in a solution that has the least amount of volume or mass is the _____________.
   A. Solutions  B. Mixtures  C. Solvent  D. Solute
   In chemistry, a solution is a homogeneous mixture composed of only one phase. In such a mixture, a solute is a substance dissolved in another substance, known as a solvent. The solvent does the dissolving. The solution more or less takes on the characteristics of the solvent including its phase, and the solvent is commonly the major fraction of the mixture. The concentration of a solute in a solution is a measure of how much of that solute is dissolved in the solvent.

3. The living components of an ecosystem are called _____________.
   A. Abiotic Factors  B. Biotic Factors  C. Terrestrial  D. Non-terrestrial
   Biotic components are the living things that shape an ecosystem. A biotic factor is any living component that affects another organism, including animals that consume the organism in question, and the living food that the organism consumes. Each biotic factor needs energy to do work and food for proper growth. Biotic factors include human influence.

4. All members of one species that live in a particular area are called a _____________.
   A. Community  B. Population  C. Group  D. Lek
   A population is a summation of all the organisms of the same group or species, which live in the same geographical area, and have the capability of interbreeding.

5. ____________ is an organism that lives a large portion of its life on or within a host organism, usually causing harm to the host without killing it immediately.
   A. Parasite  B. Symbiote  C. Predator  D. Prey
   Parasitism is a non-mutual symbiotic relationship between species, where one species, the parasite, benefits at the expense of the other, the host. Traditionally parasites referred primarily to organisms visible to the naked eye, or macroparasites (such as helminths). Parasite now includes microparasites, which are typically smaller, such as viruses and bacteria. [1] Some examples of parasites include the plants mistletoe and cuscus, and animals such as hookworms.

COMPLETE THE CROSSWORD!
(Each question blank is worth 5 points. Please write the correct answer in the space provided in blue ink)

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Across
5. Packages proteins (polypeptide)
6. a cell that fuses with another cell during fertilization (gamete)
6. Consist of one or more chains of amino acids (proteins)
7. Studied pea plants to establish rules of heredity (mendel)

Down
1. This type of bond is an electrostatic attractive interaction (hydrogen)
2. Obtain energy via photosynthesis (plants)
4. Origin of Species (darwin)
7. Structural unit of all known living organisms (cells)

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E CONTEST 2015 Grades 4 – 6 Total Points = _______________ out of Possible 65 Points
Art & Math “Magnificent Seven”

Draw pictures or cut and paste pictures of seven items (anything — Ducks, Cartoons, Cowboys, Super Heroes, the Continents etc.) where each represents one of the seven basic units in the metric system. Identify each character with one of the seven basic units with a brief description. We have provided examples at www.artsandsciences.sc.edu/cse & www.scacademysci.org (click on MESAS).

1. **Meter (m)**,  2. **Second (s)**, 3. **Ampere (A)**, 4. **Candela (cd)**,
5. **Celsius (C)**,  6. **Kilogram (kg)**, 7. **Mole (mol)**.

Use landscape and put this on one page 8.5 by 11. Use color. Please print your name and school in bottom right corner. Take a picture or make a copy of your art and attach to the SCAS MESAS 2015 Mail-in Contest. We will grade this based on the following rubric:

- Creative Presentation of each of the seven objects: 10 points
- Association and Description used with your seven objects: 15 points
- Use of Color: 05 points
- Overall Artistry: 15 points
- Spacing: 05 points

Total Points = ____________

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Mystery Science Stories: Jumping Through Hoops; Setting: Soccer Ball Practice

Ms. O’Cork, the girls’ P.E. Teacher, tried to mix up the activities to give her class different kinds of exercise. Today, she had brought out a bunch of hula hoops for warm-ups, which the girls enjoyed. They were out on the back field. Because it was used for all kinds of sports, the field had no distance marking. After warm-ups, Ms. O’Cork gathered everyone on the edge of the field, where she dropped a large bag of soccer balls and some short metric measuring tapes (3 m long), the kind used for measuring clothes, waist-line etc. “The School record for putting a soccer ball is 40 meters,” she announced. “Anyone who can break the record in the next two minutes and can prove it does not have to run laps at the end of practice.”

“But it will take that long just to measure 40 meters with these little 3 meter tapes,” Kaylee said.

“Okay, anyone who can figure out how to accurately measure the distance in that time does not have to run laps either,” the teacher said. McKenzie turned to Lucy, who was the goalie on their soccer team and a good punter. “I know a way we’ll both get out of running laps,” McKenzie said. “What do you have in mind?” asked Lucy.

McKenzie picked up the 3 meter measuring tape and begins measuring the circumference of a hula hoop. She found that the Circumference was 273.3 centimeters.

**Each Question 1 — 4 counts 10 points**

1. How many of the following statements are true? (1) McKenzie measured the circumference of the hula hoop with the 3 meters measuring tape. (2) McKenzie measured the diameter of the hula hoop, divide by 2 and used C = \(2\pi\) to find the circumference. (3) McKenzie measured any chord which was not a diameter used the length of the chord and multiplied by six. (4) McKenzie viewed the hula hoop as a circle and found the Area and divided by two to get the circumference.

   **Answer = (e)**

2. Lucy suggested to roll the hula hoop 15 times from the starting point which would yield a total distance that would be ____________ than 40 meters

   (a) Less than 40 meters   (b) Greater than 40 meters   (c) Equal to 40 meters   (d) 0 meters

   **Ans = (b)** actual amount = 40.5 meters

3. If Circumference \(C = 273.3\) cm then the diameter is close to ____________

   (a) 87 cm   (b) 0.87 dm   (c) 8.7 cm   (d) 0.87 dm

   **Ans = (a)**

4. Lucy warmed up and kicked the soccer ball beyond the marked distance! Do you think she kicked the soccer ball beyond the record 40 meters?

   (a) Yes   (b) No

   **Ans = (a) since the distance measured is 40.5 meters which beats the record.**

**Reference:**
65 Short Mysteries You Can Solve With Science by Eric Yoder and Natalie Yoder
Science Naturally .com (5th edition January 2014) Recommended by the National Science Teachers Association (NSTA)

E CONTEST 2015 Grades 4 – 6  Total Points = ____________ out of a Possible 90 Points  Page 4