EVENT 4: PENNY CANTILEVER

(Dated 10/1/17)

OBJECTIVE: To build a penny cantilever that extends as far as possible off of a table without any attached supports.

RULES:

a. The penny cantilever is to be constructed by the team during the event.
b. The cantilever is to be constructed entirely from up to 100 pennies minted during the years from 1985 to the present year.
c. A removable form may be used.
d. The cantilever cannot be attached to the table or any other object.
e. The pennies cannot be attached to each other.
f. The pennies cannot have any appreciable corrosion, oxidation or damage.
g. The pennies cannot be altered.
h. No part of the cantilever can exceed 10.0 centimeters in height as measured from the top of the table upon which the structure is built to the bottom of the cantilever.
i. The portion of the cantilever supported by the table cannot be longer than three times the length of the portion suspended from the table.
j. During registration, the team must present to the judge(s) a picture of their apparatus taken from within their classroom/lab to document their design. No major design changes will be permitted once the photos are submitted.

COMPETITION AND SCORING:

a. Each participant will bring to the completion 100 pennies dated from 1985 to 2015.
b. The pennies will be counted and inspected by the judge(s).
c. Within a 15-minute time limit, the team will be given three chances to construct their cantilever; after the third collapse of the cantilever, the team will be disqualified.
d. After the 15-minute time limit or when the entrants notify the judge(s), the length of the cantilever extending unsupported from the table will be measured in centimeters and used to calculate the score.
e. Longest span wins.
f. The numbers of pennies used to construct the penny cantilever will be used as tiebreaker. Fewest pennies will break the tie.
g. If the tie breaking procedure is used, the winning team with the fewest pennies will have their cantilever segment length increased by 10%. Their adjusted length will then become the new winning length. For example, a team having a winning cantilever length of 5.0 cm and also using the fewest pennies would have their cantilever length increased to 5.5 cm.

$$\textbf{SCORE} = \frac{\text{Length of team's unsupported cantilever segment}}{\text{Length of winning unsupported cantilever segment}} \times 100$$

Updates to the rules answers are available at: njaapt.wildapricot.org – go to the "*Forum*" section to read or post questions.
It is the team's responsibility to check for changes and clarifications to the rules.