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BPA competition tests high school students' left brains

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Bonneville Power Administration

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PORTLAND, Ore. -- High school students from Oregon and Washington will compete in the Bonneville Power Administration's eighth annual regional science bowl at the University of Portland on Saturday, February, 27. The competition draws over 300 of the region's brightest students.

The BPA Regional High School Science Bowl is a quiz-show-style competition aimed at raising students' interest and awareness in math, science and technology. Teams of five students will try to beat the clock in answering questions about astronomy, physics, math, computers and earth science.

The round robin competition begins at 8:30 a.m. in the University of Portland's Franz Hall. The university is located at 5000 N. Willamette Blvd. Each team will compete at least four times. Teams that advance will compete at 1:30 p.m. A championship match pairing the top two teams will kick off at 4 p.m. in the university's Buckley Center Auditorium.

The competition is designed to create enthusiasm and show support for students in math, science and technology - especially for female and minority students who are underrepresented in these fields.

The Bonneville Power Administration, a federal agency under the Department of Energy, markets power from 29 federal dams and one nonfederal nuclear plant in the Pacific Northwest. BPA provides low-cost electricity to the publicly owned and investor-owned utilities that serve the communities these students represent. The University of Portland is a co-sponsor of BPA's Regional High School Science Bowl.

Attached is a list of [competing high schools](#) and a few [sample questions](#).

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	SCHOOL	ADDRESS	CITY, STATE, ZIP	SCHOOL PHONE	FAX #	PRINCIPAL	COACH FIRST NAME	COACH LAST NAME
1	Aloha High School	18550 SW Kinnaman Rd	Beaverton, OR 97007	503-259-4700	503-259-4713	Ms. Sue Tarrant	George	Delegans
2	Ashland High School		Ashland, OR				Kate	Kennedy

3	Benson High School (2 teams)	546 NE 12th Ave	Portland, OR 97213	503-916-5100			Jean	Eames
4	Brookings-Harbor High School	564 Fern Ave	Brookings, OR 97415	541-469-2108	541-469-6570	Mr. Darold Powell	Mark	Wechter
5	Cascade High School (2 teams)	10226 Marion Rd, SE	Turner, OR 97392	503-743-2139		Mr. Harry Walker	Trudy	Swan
6	Centennial High School (2 teams)	3505 SE 182nd	Gresham, OR 97030	503-661-7612	503-661-5296	Mr. Curt Heath	Lori	Lancaster
7	Central Catholic High School (2 teams)	2401 SE Stark St	Portland, OR 97214	503-235-3138		Mr. Ronald Edwards	Mike	Macallister
8	Charles Wright Academy	7723 Chambers Cr. Rd, W.	Tacoma, WA 98467	253-620-8369	253-620-8431	Mr. Bill White, Head of U.S.	David	Kangas
9	Churchill High School		Eugene, OR				Chris	Bolton
10	Cle Elum-Roslyn High School	2692 SR903	Cle Elum, WA 98922	509-649-2291	509-649-3563	Lee Maras	Jim	Miller
11	Forest Grove High School (2 teams)	1401 Nichols Ln.	Forest Grove, OR 97126	503-359-2432	503-359-2521	Mr. Robert Schlegel	Ross	Poff
12	Franklin High School	5405 SE Woodward St	Portland, OR 97206	503-916-5140	503-916-2694		Dave	Fletcher
13	Glencoe High School (2 teams)	2700 NW Glencoe Rd	Hillsboro, OR 97124	503-640-8971	503-640-5604	Mr. John Neumann	Susan	Weidkamp
14	Grant High School	2245 NE 36th	Portland, OR 97212	503-916-5160		Ms. Toni Hunter	David	Eide
15	Hillsboro High School (2 teams)	3285 SE Rood Bridge Rd	Hillsboro, OR 97124	503-648-8561	503-693-0645		Arnie	Ariss
16	International School (2 teams)	445 - 128th Ave, SE	Bellevue, WA 98005	425-456-6500	425-456-6565		Angie	Dickerson

17	Jefferson High School	336 Talbot Rd	Jefferson, OR 97352	541-327-3337	541-327-1867	Mr. Robert Tower	Greg	Wickett
18	Kentridge High School		Kent, WA					
19	Lakeridge High School (2 teams)	1235 Overlook	Lake Oswego, OR 97034	503-635-0319		Mr. Daniel Zenor, Assistant Principal	Chris	Laufer
20	Merlo Station High School	1841 SW Merlo Dr	Beaverton, OR 97006	503-259-5575	503-259-5588	Ms. Janice Adams	Hector	Morales
21	Milwaukie High School		Milwaukie, OR				Jeff	Linman
22	North Marion High School	20167 Grim Rd	Aurora, OR 97002	503-678-5835	503-678-7186	Mr. Ronald Wehling	John	Wechter
23	North Medford High School	1900 N. Kenneway Dr	Medford, OR 97504	541-776-8726	541-776-8540	Mr. Don Lacey	Mark	Geisslinger
24	Oakland High School	Box 241	Oakland, OR 97462				Jerry	Goodrich
25	Oregon City Sr. High School (2 teams)	1306 - 12th St	Oregon City, OR 97045	503-657-2411	503-657-0445	Ms. Pam Stratton	Peggy	Bromley
26	Prospect High School	PO Box 40	Prospect, OR 97536	541-560-3653	541-560-3644	Mr. Don Alexander, Superintendent	Jim	Smith
27	Redmond High School (3 teams)	17272 NE 104th St	Redmond, WA 98052	425-881-4352	425-881-4369	Mr. Earl Wayman	Mike	Town
28	Riverdale High School	Marylhurst University Campus, Highway 43, PO Box 2	Marylhurst, OR 97036	503-699-9707	503-699-9431	Ms. Kimberly Campbell	Laurie	LePore
29	Riverside High School	E. 4120 Deer Park-Milan Rd	Chattaroy, WA	509-292-0210	509-292-0380	Mr. Mark Gorman	Bill	Kemp
30	Sam Barlow		Gresham,				Gary	Jackson

	High School (2 teams)		OR 97030					
31	Scappoose High School (3 teams)	33700 SE High School Way	Scappoose, OR 97056	503-543- 6376	503- 543- 7011	Mr. Mike Funderburg	Lori	Hunt
32	Sherwood High School	1155 Meinecke Rd	Sherwood, OR 97140				John	McGinity
33	South Albany High School	830 SE 24th	Albany, OR 97	541-967- 4555	541- 924- 3702		Covie	Quick
34	South Salem High School (2 teams)	1910 Church St., SE	Salem, OR 97302	503-399- 3252	503- 375- 7805	Mr. George Dyer	Michael	Lampert
35	South Umpqua High School (2 teams)	501 NW Chadwick	Myrtle Creek, OR 97457	541-863- 3118	541- 863- 5486	Mr. Jim Walker	Ross	Weakley
36	South Wasco County High School	PO Box 347	Maupin, OR 97037	541-395- 2225	541- 395- 2223	Mr. H. V. Drago, Jr.	Bev	Froemming
37	West Linn High School (2 teams)	5464 W. "A" St.	West Linn, OR 97068	503-656-2618			Julie	McDevitt
38	Wilson High School (3 teams)	1151 SW Vermont	Portland, OR 97219	503-916- 5280	503- 916- 2705	Mr. Mike Hryciw	Bernie	Carlson
39	Wilsonville High School (2 teams)	6800 SW Wilsonville Rd	Wilsonville, OR 97070	503- 685-4600				
40	Winlock High School	241 N. Military Rd.	Winlock, WA 98596	360-785- 3537	360- 785- 3538	Mr. John Stemkoski	Craig	Mitchell
41	Woodinville High School (2 teams)	19819 - 136th Ave, NE	Woodinville, WA 98072	425-402- 7706	425- 402- 7726	Ms. Vicki Puckett	Larry	Gulberg

**1999 BPA Regional High School Science Bowl
Sample Questions**

1. **ASTROLOGY: MULTIPLE CHOICE:** Which planets rotate in retrograde motion, opposite in

direction of their revolution around the sun?

- a. Mercury and Pluto
- b. Jupiter, Saturn and Uranus
- c. Venus and Uranus
- d. Venus, Earth and Mars

ANSWER: C – Venus and Uranus

2. **BIOLOGY: SHORT ANSWER:** What common poisonous gas kills humans by strongly binding to hemoglobin in the blood stream?

ANSWER: Carbon monoxide

3. **PHYSICS: MULTIPLE CHOICE:** When a gas is in equilibrium its molecules . . .
- a. all have the same energy.
 - b. have different energies that remain constant.
 - c. have a certain constant average energy.
 - d. do not collide with one another.

ANSWER: C – have a certain constant average energy.

4. **PHYSICS: MULTIPLE CHOICE:** What is the percentage of mechanical energy that can theoretically be turned into heat energy according to the first law of thermodynamics?
- a. 100 percent
 - b. 90 percent
 - c. 75 percent
 - d. 50 percent

ANSWER: A – 100 percent

5. **GENERAL: SHORT ANSWER:** What measure of length, mainly used for sea depths, was originally the breadth of the outstretched arms?

ANSWER: Fathom

6. **CHEM: MULTIPLE CHOICE:** How are the noble gases obtained?
- a. Noble gas compound are electrolyzed and the gas collected at the anode.
 - b. These gases are found dissolved in deep-well brine solutions; the gases are recovered by reducing the pressure above the brine solution.
 - c. These gases are obtained from the distillation of liquid air.
 - d. All of the above.

ANSWER: C – These gases are obtained from the distillation of liquid air.

7. **PHYSICS: SHORT ANSWER:** You are standing in front of a mirror. What minimum length of plane mirror is required for you to see your entire image?

ANSWER: Half your height

8. **GENERAL: SHORT ANSWER:** What device first proved that earth rotates on its axis?

ANSWER: Foucault Pendulum

9. **ASTR: MULTIPLE CHOICE:** Craters and maria (seas) cover the moon. Compared to the near side of the moon, the far side is:
- more cratered, with more extensive maria
 - more cratered, with less extensive maria
 - less cratered, with more extensive maria
 - less cratered, with less extensive maria

ANSWER: B – more cratered, with less extensive maria

BONUS

What is the name of the ocean whose wind systems cause an almost complete reversal of its circulation?

ANSWER: Indian Ocean

10. **CHEM: MULTIPLE CHOICE:** In the presence of excess oxygen, potassium, rubidium and cesium form:
- normal oxides
 - peroxides
 - superoxides
 - hyperoxides

ANSWER: C – superoxides

BONUS

GENERAL: SHORT ANSWER: What device first proved that earth rotates on its axis?

ANSWER: Foucault Pendulum

11. **CHEM: MULTIPLE CHOICE:** Which of the following is NOT a colligative property
- freezing point
 - malleability
 - rate of diffusion through a membrane
 - vapor pressure

ANSWER: B – malleability

12. **ASTR: MULTIPLE CHOICE:** Elements on Earth with atomic numbers higher than that of iron were formed in:
- supernovae
 - the core of red giant stars
 - the surface of interstellar dust grains
 - the solar nebula when the solar system formed

ANSWER: A – supernovae

BONUS

COMP: MULTIPLE CHOICE: What is the name of the attempt to emulate human intuition, judgement and common sense?

- a. Machine language
- b. BASIC programming
- c. High-level language
- d. Heuristic programming

ANSWER: D – Heuristic programming
