

## JOHNSON SOLIDS & THEIR ACRONYMS

Darryl Francis  
Brampton, Cumbria, England  
darryl.francis@yahoo.co.uk

In a previous article, I examined the names of the Johnson solids. A quick reminder: the 92 Johnson solids are a set of three-dimensional solids whose faces are a mixture of triangles, squares, pentagons, hexagons, octagons, and decagons. Three constraints apply to the solids: (1) all their edges must be the same length, (2) the faces must be regular, and (3) there can be no dimples in their surfaces.

The names of the 92 solids are a mixture of familiar looking words and many splendidly exotic words, as will be seen from the full list below. According to the website [bendwavy.org/klitzing/explain/johnson.htm](http://bendwavy.org/klitzing/explain/johnson.htm), each of the 92 names has a corresponding acronym. The 92 acronyms are also in the list below.

	Johnson Solid	Acronym
1	square pyramid	squippy
2	pentagonal pyramid	peppy
3	triangular cupola	tricu
4	square cupola	squacu
5	pentagonal cupola	pecu
6	pentagonal rotunda	pero
7	elongated triangular pyramid	etripy
8	elongated square pyramid	esquippy
9	elongated pentagonal pyramid	epeppy
10	gyroelongated square pyramid	gyesp
11	gyroelongated pentagonal pyramid	gyepip
12	triangular dipyramid	tridpy
13	pentagonal dipyramid	pedpy
14	elongated triangular dipyramid	etidpy
15	elongated square dipyramid	esquidpy
16	elongated pentagonal dipyramid	epedpy
17	gyroelongated square dipyramid	gyesqidpy
18	elongated triangular cupola	etcu
19	elongated square cupola	escu
20	elongated pentagonal cupola	epcu
21	elongated pentagonal rotunda	epro
22	gyroelongated triangular cupola	gyetcu
23	gyroelongated square cupola	gyescu
24	gyroelongated pentagonal cupola	gyepcu
25	gyroelongated pentagonal rotunda	gyepro
26	gyrobifastigium	gybef
27	triangular orthobicupola	tobcu
28	square orthobicupola	squobcu
29	square gyrobicupola	squigybcu
30	pentagonal orthobicupola	pobcu
31	pentagonal gyrobicupola	pegybcu
32	pentagonal orthocupolarotunda	pocuro
33	pentagonal gyrocupolarotunda	pegycuro
34	pentagonal orthobirotonda	pobro
35	elongated triangular orthobicupola	etobcu
36	elongated triangular gyrobicupola	etigybcu
37	elongated square gyrobicupola	esquigybcu
38	elongated pentagonal orthobicupola	epobcu
39	elongated pentagonal gyrobicupola	epigybcu
40	elongated pentagonal orthocupolarotunda	epocuro
41	elongated pentagonal gyrocupolarotunda	epgycuro
42	elongated pentagonal orthobirotonda	epobro
43	elongated pentagonal gyrobirotonda	epgybro

44	gyroelongated triangular bicupola	gyetibcu
45	gyroelongated square bicupola	gyesquibcu
46	gyroelongated pentagonal bicupola	gyepibcu
47	gyroelongated pentagonal cupolarotunda	gyepcuro
48	gyroelongated pentagonal birotunda	gyepabro
49	augmented triangular prism	autip
50	biaugmented triangular prism	bautip
51	triaugmented triangular prism	tautip
52	augmented pentagonal prism	aupip
53	biaugmented pentagonal prism	baupip
54	augmented hexagonal prism	auhip
55	parabiaugmented hexagonal prism	pabauhip
56	metabiaugmented hexagonal prism	mabauhip
57	triaugmented hexagonal prism	tauhip
58	augmented dodecahedron	aud
59	parabiaugmented dodecahedron	pabaud
60	metabiaugmented dodecahedron	mabaud
61	triaugmented dodecahedron	taud
62	metabidiminished icosahedron	mibdi
63	tridiminished icosahedron	teddi
64	augmented tridiminished icosahedron	auteddi
65	augmented truncated tetrahedron	autut
66	augmented truncated cube	autic
67	biaugmented truncated cube	bautic
68	augmented truncated dodecahedron	autid
69	parabiaugmented truncated dodecahedron	pabautid
70	metabiaugmented truncated dodecahedron	mabautid
71	triaugmented truncated dodecahedron	tautid
72	gyrate rhombicosidodecahedron	gyrid
73	parabigyrate rhombicosidodecahedron	pabgyrid
74	metabigyrate rhombicosidodecahedron	mabgyrid
75	trigyrate rhombicosidodecahedron	tagyrid
76	diminished rhombicosidodecahedron	dirid
77	paragyrate diminished rhombicosidodecahedron	pagyrid
78	metagyrate diminished rhombicosidodecahedron	magyrid
79	bigyrate diminished rhombicosidodecahedron	bagyrid
80	parabidiminished rhombicosidodecahedron	pabidrid
81	metabidiminished rhombicosidodecahedron	mabidrid
82	gyrate bidiminished rhombicosidodecahedron	gybadrid
83	tridiminished rhombicosidodecahedron	tedrid
84	snub disphenoid	snadow
85	snub square antiprism	snisquap
86	sphenocorona	waco
87	augmented sphenocorona	auwaco
88	sphenomegacorona	wamco
89	hebesphenomegacorona	hawmco
90	disphenocingulum	dawci
91	bilunabirotunda	bilbiro
92	triangular hebesphenorotunda	thawro

Most of the acronyms are derived from the full names – eg *squippy* for *square pyramid* at number 1, and *tricu* for *triangular cupola* at number 3. But a few acronyms seem unrelated to the full names – eg *waco* for *sphenocorona* at number 86, and *dawci* for *disphenocingulum* at number 90. Note the mutual transpositions at numbers 5 and 20, and numbers 6 and 21. Especially note the palindrome at number 76 and the Texan placename at number 86.

My earlier article looked at transpositions, transdeletions and transadditions of the 92 names and their 53 component words. In this article, I take a look at transpositions and some of the more interesting transadditions of the 92 acronyms. Given the shortness of most of the acronyms, I haven't bothered with any transdeletions and transadditions of less than six letters.

Here are transpositions for 32 of the acronyms:

aud	aud (OED)
aupip	appui (W2)
auteddi	audited (W3)
autic	Utica (W3), citua (W2)
autid	audit (W3)
autip	pitau (W3)
bilbiro	biribol (Wikipedia: a sport which resembles an aquatic variation of volleyball, originating in Brazil)
epcu	puce (W3)
epocuro	EuroCOP (eurocop.org: the European Confederation of Police, EuroCOP, is the umbrella organisation for 35 police unions and staff organisations in Europe based in Luxembourg)
epro	rope (W3)
escu	cues (W3)
etcu	cute (W3)
etripy	pyrite (W3)
gyepip	gyppie (OED: a variant of 'gippy', an Egyptian or a gipsy)
gyepro	perogy (OED: a variant spelling of 'pierogi', an east European dish of dumplings)
gyesp	gypse (OED)
gyrid	ridgy (W3), dirgy (W2)
pecu	puce (W3)
pedpy	deppy (urbandictionary.com: someting very sad or depressing)
pero	rope (W3)
pobcu	pubco (Chambers 11th & 12th editions)
pobro	robop (Wikipedia: short for robotic bird of prey - the name for a mechanical peregrine falcon that squawks, flaps its wings and sounds like the real bird)
snadow	Dawson (Wikipedia: the name of various villages, towns, boroughs, etc, in the US)
snisquap	pasquins (W3)
taud	daut (W3)
tauhip	Phi Tau (Wikipedia: a coeducational fraternity at Dartmouth College, New Hampshire)
tautid	Audi TT (Wikipedia: a two-door sports car manufactured by Audi)
tautip	putita (urbandictionary.com: a derogatory term for a girl or woman), Tiputa (Wikipedia: a village on the French Polynesian atoll of Rangiroa)
teddi	tided (W3)
tedrid	dirted (W3)
thawro	aworth (W2), hot war (W3), wroath (OED)
tricu	rutic (W3)

And here are single-letter transadditions for 27 of the acronyms:

aupip	Appius (W2)
etobcu	beclout (W2)
epobro	blooper (W3)
mabidrid	bridemaid (W3)
tauhip	chupati (Chambers 11th & 12th editions)
tobcu	cobnut (W3)
tedrid	drifted (W3)
auhip	hairup (W2)
snadow	onwards (W3)
pocuro	outcrop (W3)
epeppy	peppery (W3)
etripy	petrify (W3)
esquipy	physique (W3)

esquidpy	physiqued (W3)
tautip	pituita (W3)
epedpy	popayed (W3)
peppy	preppy (W3)
gyepro	progeny (W3)
tridpy	prudity (W2)
pobcu	pubcos (Chambers 11th & 12th editions)
tricu	rustic (W3)
tagyrid	tardying (W2)
etidpy	tepidly (W3)
autip	utopia (W3)
auteddi	viduated (W2)
thawro	warthog (W3)
pedpy	yapped (W3)