

My Cosmala Plan Spreadsheet

As of 2009.06.28, J. Cleland Host

Age/Epoch Name	Actual Date (mybp)	Calc. Date (mybp)	Spacer Time Length	Event (After Spacers) ea.	#S.B.
Great Radiance	13,700	13,700	-	Great Radiance	
	13,700	13,700	10 ⁻³⁶ s	Energy/Space Inflation	-18
	13,700	13,700	10 ⁻⁶ s	Baryonic Imbalance	-3
Hydrogen Age		13,700	0	Marker Hydrogen Age (H)	0
	13,700	13,700	10 ² sec	H & He Nucl form ~ 2 minutes	2
	13,700	13,700	10 ¹³ s	H& He atoms, 300ky after GR	13
Stellar Age	13,700	13,700	0	Marker Stellar Age (S)	0
	13,200	13,200	10 ¹⁶ s	First Stars -oldest star at 13.2	16
	13,000	13,000	10 ¹⁶ s	First Galaxies - oldest gal at 13.0	16
Nucleosynthesis Age		13,000		Marker Nucleosynthesis Age (N)	0
	10,000	10,000	3,000	Supernova Gen 1	3
1,000	8,000	8,000	2,000	Milky way forms	2
	5,000	5,000	3,000	Supernova Gen 2	3
	5,000	4,900	100	Shock w solar f/ignition	2
50	4,600	4,600	300	Earth forms	6
Hadean Eon	4,600	4,600	0	Marker Hadean Eon (H)	0
	4,500	4,500	100	Moon forms	2
	4,400	4,400	100	Core solidifies	2
	4,100	4,100	300	Great Rain	6
	4,000	4,000	100	Organic Molecules	2
	3,900	3,950	50	Self-replicating molecule	1
	3,800	3,900	50	RNA	1
	3,800	3,850	50	DNA	1
	3,800	3,800	50	Replicating NA in bubble - life	1
Archean	3,800	3,800	0	Marker Archean Eon (A) 3,800	0
	3,500	3,500	300	Hydrogen low at fringes	6
	3,200	3,200	300	Photosynthesis	6
	3,100	3,100	100	Stromatolites	2
	3,000	3,000	100	Red iron deposits soak up oxygen	2
	2,800	2,800	200	Oxygen crisis!	4
	2,700	2,700	100	The Ozone Layer Forms	2
	2,600	2,600	100	Mitochondria	2
	2,500	2,500	100	Predation	2
	2,400	2,400	100	Nitrogen fixation	2
	2,200	2,200	200	Snowball Earth	4
	2,100	2,100	100	Metabolic Cycles in Place	2
	2,000	2,000	100	Eukaryotic cells	2
Proterozoic	2,000	2,000	0	Marker Proterozoic Eon (P)	0
	1,900	1,900	100	Eukaryotic Plant cells	2
	1,500	1,500	400	Miotic Sex	8
	1,200	1,200	300	Pseudopod & vacuoles	6
	1,100	1,100	100	Choanoflagellate	2
	900	900	200	Multicellularity	4
	800	800	100	Sponges	2
	700	700	100	Coelomate Worm	2
	600	600	100	Ediacara	2
Paleozoic: Cambrian	600	600	0	Marker Phanerozoic Eon, Paleozoic Era, Cambrian Period (P P C)	0
	540	540	32	Eyes	16
2	530	536	4	Hard Shells	2
	525	528	8	Trilobite	4
	520	524	4	Pikaia	2
	518	520	4	Opabinia	2
	515	510	10	Anomalacaris	5
	510	506	4	Snails	2

	500	500	6	Extinction	3
<i>Ordovician</i>	488	488	12	Marker Ordovician (O) 488	6
	470	484	16	Starfish/echinoderms	8
	460	468	16	Coral	8
	455	452	16	Appalacian Mountains rise	8
	450	444	8	Bony fish/ like hagfish	4
	444	440	4	Extinction 5	2
<i>Silurian</i>	440	440	0	Marker Silurian (S) 444	0
	435	432	8	Land plants	4
	430	428	4	Jaws	2
	428	424	4	Teeth	2
	425	422	2	Sharks	1
	420	420	2	Lobe Finned Fish + oil swim bladder, Coeled	1
	416	418	2	Sea scorpions	1
	416	416	2	Extinction	1
<i>Devonian</i>	416	416		Marker Devonian (D) 416	0
	408	408	8	first land animals - arth.	4
	400	404	4	First Ammonites	2
	395	400	4	Giant Fungus (26')	2
	390	398	2	Roots	1
	388	396	2	Liverworts	1
	385	392	4	Wood	2
	375	384	8	Vertebrate Lungs	4
	375	380	4	Tiktaalik 375	2
	370	376	4	Mass extinction	2
	368	374	2	Ferns	1
	366	372	2	Seeds	1
	365	368	4	Cladoxylopsid trees, anc to ferns & horsetail	2
	364	364	4	Ichthyostega 367 to 363	2
	360	360	4	Mass extinction 364 (end of Big 5 that starte	2
<i>Carboniferous</i>	359	360		Marker Carboniferous (C) 360	0
	358	358	2	Hynerpeton	1
	355	354	4	Sea lilies	2
	350	350	4	Forests (calamites 60')/Biggest ever, early C	2
	345	346	4	Oxygen very high (no fungus to eat wood)	2
	340	342	4	Giant dragonflies	2
	335	338	4	Giant millipedes	2
	330	328	10	Middle Carboniferous Extinction	5
	325	324	4	First cycads	2
	320	320	4	Shark radiation	2
	318	316	4	First conifers	2
	316	312	4	Amniotic, hard egg - reptiles	2
	314	308	4	Reptiles	2
	310	304	4	Penis	2
	305	302	2	Claw (by reptiles)	1
	300	300	2	Pangaea	1
<i>Permian</i>	299	300		Marker Permian (P) 299	0
	290	298	2	Frogs 290 on	1
	285	296	2	Massive desert	1
	280	292	4	Beetles (265-300)	2
	275	284	8	Dimetrodon & Different teeth 280 to 265	4
	270	280	4	Ginkgos	2
	265	272	8	Widespread (not first) cockroaches	4
	260	268	4	Flies	2
	254	254	14	Cynodonts (like furry lizards)	7
	250	250	4	Permian (huge) Extinction	2
<i>Mesozoic:Trias</i>	251	250		Marker Phanerozoic Eon, Mesozoic Era, Triassic Period (P M T) 251	0
	242	246	4	Archeosaurs (Tuatara ancestors)	2
	238	236	10	Crurotarsans split from reptile line	5
	236	234	2	Ichthyosaurs	1
	230	232	2	First Dinosaurs Euraptor	1
	220	224	8	first pterosaurs 220 to 65	4

	220	222	2	Oldest Turtle Fossil <i>Odontochelys</i> 220	1
	218	218	4	Mammals relegated to insectivores	2
	216	208	10	Pangea Breakup	5
	200	200	8	Extinction big 5	4
<i>Jurassic</i>	200	200		<i>Marker Jurassic (J) 199.6</i>	0
	198	198	2	Butterflies	1
	195	194	4	Hadrocodium - mammal with 1st inner ear, j	2
	190	186	8	Plesiosaurs 190-65	4
	186	182	4	Atlantic Ocean	2
	182	174	8	Gymnosperm pollen & radiation	4
	170	170	4	Allosaurs and such 230-65 (theropods)	2
	166	168	2	Big Sauropods 188-65	1
	164	164	4	Breasts & milk	2
	148	148	16	Archaeopteryx/first birds	8
<i>Cretaceous</i>	144	144	4	<i>Marker Cretaceous (C) 145</i>	2
	142	142	2	Vagina evolves in mammals	1
	130	130	12	Earliest Ants	6
	130	128	2	Oldest Angiosperm flower) fossil	1
	126	126	2	Ceratopsians	1
	125	122	4	Earliest Placental Mammal <i>Eomaia</i>	2
	120	118	4	Sea Turtles Evolve	2
	115	110	8	Flower and Insects co-evolve	4
	100	102	8	Angiosperms radiate (fruit probably involved)	4
	96	94	8	Bird radiation (co-evolution with fruit)	4
	90	90	4	Madagascar splits from India	2
	85	86	4	Primates evolve from shrew like creature da	2
	67	70	16	Grass	8
	65	66	4	K-Pg Extinction Event	2
<i>Paleocene</i>		66	0	<i>Marker Phanerozoic Eon, Cenozoic Era, Paleogene Period, Paleocene Epoch (P C P P)</i>	0
1	64	64	2	Turtle Radiation	2
	63	64	0	Mammal Radiation	0
	62	62	2	First Rodents	2
	58	60	2	Gastornis Terror Bird + Bird Radiation	2
<i>Eocene</i>	56	56	4	<i>Marker Eocene 56</i>	4
	56	54	2	Earliest known Probscian (elephant)	2
	54	53	1	Eohippus (early Eocene)	1
	52	52	1	Bats evolve (but no echolocation yet)	1
	50	48	4	Whale Ancestors enter water (<i>Ambulocetus</i>)	4
	49	46	2	Daisies evolve	2
	38	38	8	Squirrels and nuts co-evolve	8
	35	34	4	End Eocene Extinction	4
<i>Oligocene</i>	34	34		<i>Marker Oligocene 34</i>	0
	34	32	2	isolated and unique south America	2
	33	31	1	antarctica gains ice cap mid	1
	32	30	1	paraceratherium 6 m tall shoulder, 20-30 my	1
	31	28	2	Extinction of many mammals spread over ol	2
	28	27	1	La Garita massive volcano, Co, 26028 mya,	1
	27	26	1	Seals evolve from bearlike ancestors	1
	25	25	1	First dolphins, late oligocene	1
	24	24	1	Proconsul (27-17)	1
<i>Miocene</i>	23	23	1	<i>Marker Phanerozoic, Cenozoic, Neogene, Miocene (P C N M) 23</i>	1
	22	21	2	Dolphin echolocation develops (early miocen	2
	18	21	0	Megalodon - 18 m like great white	0
	16	16	5	Great white shark evolves (also, Megalodon	5
	11	12	4	Ginkgos nearly extinct	4
	6	8	4	Grand Canyon begins to form	4
<i>Pliocene</i>	5	6	2	<i>Marker Pliocene (P) 5</i>	2
	5	6	0	Bonobo common ancestor	0
	4	5	1	Panama - American Interchange	1
	3	4	1	<i>Homo habilis</i> & stone tools	1

<i>Pleistocene</i>	2	3	1	<i>Marker Pleistocene (P) 2</i>	1
(almost =	1.5	2.5	0.5	Discovery of Fire (by Homo erectus)	5
"Paleolithic")	0.8	2.0	0.5	Organized hunting & better weapons	5
0.1	0.7	1.6	0.4	Brain Evolution	4
	0.6	1.5	0.1	Human use of pigment/abstract thought	1
	0.5	1.4	0.1	Symbolic Language	1
<i>Middle Paleolit</i>	0.3	1.3	0.1	<i>Marker Middle Paleolithic (M P) 300 kya</i>	1
	300000	280000	20000	Ritual burial 300K : such as burial rites that	2
	250000	240000	40000	Cooking	4
	200000	200000	40000	Polar Bears Evolve from Grizzlies	4
	160000	160000	40000	Languages evolve 160 to 40 K	4
10,000	120000	120000	40000	Money (ochre, shells, etc.)	4
500	100000	110000	10000	Dogs evolve from wolves 14-140K	1
200	70000	70000	40000	Humans enter Australia	4
50	65000	60000	10000	Austalian megafauna extinction	1
10	40000	40000	20000	Cave paintings 40K	2
5	35,000	30000	10000	Mother Goddess	1
	15000	20000	10000	Humans enter Americas	1
<i>Holocene:</i>	11000	10000	10000	North American Megafaunal Extinction	1
BCE/CE date	BCE Anch	HC Date	0	Agriculture	0
-1000	-10000	0	0	<i>Marker Holocene ~ Mesolithic (H - M L) 12K</i>	0
-9000	-9000	1000	1000	Cats Domesticated	2
-8000	-8000	2000	1000	Stone circles/Earth Religion	2
-7000	-7000	3000	1000	Cities form	2
-6500	-6500	3500	500	Egyptian sun worship Unknown: By about 5	1
-5000	-5000	5000	1500	Writing (or much before? -see Bilzingsleben	3
-4000	-4500	6000	1000	The invention of the wheel (in the 5th millen	2
-3500	-4000	6500	500	Roots of Hinduism "The earliest evidence fo	1
-3000	-3000	7000	500	<i>Marker Bronze and Iron Ages (B I A) 3K BC</i>	1
-2600	-2500	7400	400	Chinese Folk Religion	2
-2000	-2000	8000	600	Zoroaster, roots of monotheistic abrahamic r	3
-1600	-1500	8400	400	Olmec - American Religion/Culture	2
-600	-1000	9400	1000	Roman Civilization (-753,-509,+ to 476 CE)	5
-400	-500	9600	200	Socrates, Democritus, Greek Science	1
400	400	10400	800	Christian Empire	4
400	500	10400	0	<i>Marker Dark & Middle Ages (D M A) 476 CE</i>	0
650	700	10650	250	Islamic Empire and later Science	5
800	800	10800	150	Vikings	3
900	900	10900	100	Arabic Numerals Invented/AlBiruni proposes	2
1100	1100	11100	200	Compass Invented Chinese	4
1200	1200	11200	100	Crusades 1100-1300 CE	2
1300	1300	11300	100	Black Death (Religion separates from Scien	2
1500	1500	11500	200	Columbus introduces America to Europe	4
1550	1550	11550	50	Christian Reformation Wars 1550-1700 CE	1
1600	1600	11600	50	<i>Marker Enlightenment (ENL) ~1600 CE</i>	1
1620	1620	11620	20	Francis Bacon Establishes Scientific Method	2
1630	1630	11630	10	Galileo trial/heliocentrism/Copernicus	1
1650	1650	11650	20	Bishop Ussher uses a Bible to get age of ou	2
1670	1670	11670	20	Newton, Gravity, and Mechanistic Universe	2
1720	1740	11720	50	Voltaire changes culture and science, advan	5
1800	1776	11800	80	United States founded - Enlightenment view	8
1800	1800	11800	0	<i>Marker Recent Modernity (R M) ~1800 CE</i>	0
1805	1809	11805	5	Lamarck Proposes evolution	1
1810	1811	11810	5	P. Shelley expelled for Atheism	1
1815	1815	11815	5	Cuvier establishes Extinction/Lyell publishes	1
1840	1840	11840	25	Telegraph invented	5
1845	1845	11845	5	Transc. Thoreu, Whitman, etc.	1
1855	1859	11855	10	Darwin & Origin of Species	2
1895	1898	11895	40	Curies discover Radium & Radioactivity	8
1935	1929	11935	40	Hubble, redshift, and new galaxies	8
1955	1953	11955	20	DNA molecule discovered	4
1960	1957	11960	5	Nucleosynthesis discovered	1
1965	1969	11965	5	Moon landing	1

Event Bead Used					
Disk (Spacers = - Log(sec)/2)					
Expansion Bead					
BD GP Black & White					
Spacer = Positive Log(sec)					
clear round					
clear round w/ 1 bubble =10 ¹³ /3600/24/365 and CBR released					
Spacers = Positive Log(sec)					
orange round					
black with galaxies					
Spacers = 1,000 Million years ea.					
copper glitter disk bead					
blue/white swirl					
glow in the dark bead					
yellow glass					
glass lava bead					
Spacers = 50 Million years ea.					
small round white					
FeNi from foundry					
round rain bead					
pale green cylindrical bead					
shiny long					
orange long					
purple long					
red droplet					
Spacers = 50 Million years ea.					
clear round					
green					
big black clump					
red					
large clear					
UV sensitive white/purple					
small red					
brown					
N					
ice cube					
big sphere spiral					
Round with flake					
Spacers = 50 Million years ea.					
green block					
heart					
squish					
Scuply					
big metal charm					
spotted cone					
purple long					
turq disk					
Spacers = 2 Million years ea.					
faceted yellow					
square chips					
ribbed pale					
ribbed clear					
orange oblong					
Gray big					
snail charm					

black					
Spacers = 2 Million years ea.					
starfish					
tri lock					
sculpy					
blue long					
black					
Spacers = 2 Million years ea.					
green w/bubbles					
sculpy jaws					
white tooth like					
shark cyl					
Sculpy					
black sculpy stinger					
black					
Spacers = 2 Million years ea.					
Kaedon made black sculpy foot					
sculpy ammonite					
tan clump					
cord glue					
Sculpy					
wood cyl					
pale oblong					
Sculpy Tiktaalik					
black					
long pale green oval					
wood sphere					
pale green quad long bead					
yellow glass					
black					
Spacers = 2 Million years ea.					
U of M color bead					
white flower					
Giant brown glass					
OO					
dragonfly charm					
4 brown					
black					
brown + green combo					
shark cyl					
little clear brown					
white sphere					
Scale Bead					
purple long					
claw charm					
pangea sculpy					
Spacers = 2 Million years ea.					
frog bead					
sand bead (roll in sand)					
beetle bead					
cut off sail					
leaf bead					
brown plastic					
Sculpy					
tooth sculpy					
Big black tektite					
Spacers = 2 Million years ea.					
Adair bead					
Adair picked gray					
blue flat					
pre-dinosaur head					
sculpy wing					

drill turtle charm					
insect bead black band					
sculpy breakup					
big black sphere					
Spacers = 2 Million years ea.					
gold butterfly					
find an anvil or stirrup?					
sculpy					
blue round bead					
bumpy bead					
Theropod head					
Saurpod tail					
white bead					
wing charm					
Spacers = 2 Million years ea.					
heart					
sculpy Kaedon made					
easy bead					
styrac head					
red placenta					
nice sea turtle bead					
bee bead					
strawberry bead					
grapes					
sculpy of madagascar					
monkey bead					
Long green					
Tektite					
Spacers = 1 Million years					
tan shell Kaedon picked					
combine with rodents					
pink nose KP					
sculpy beak					
Spacers = 1 Million years ea.					
gray AP					
tan footprint					
sculpy bat wing					
Blue oblong KP					
cyl daisy					
brown sphere KP					
black					
Spacers = 1 Million years ea.					
green sphere					
blue and white layers					
tan/white					
black, not round bead					
orange/white					
gray tube					
plastic dolphin bead					
purple disk					
Spacers = 1 Million years ea.					
clear w/shapes					
combine with below					
shark cyl					
leaf bead					
brown with layers					
Spacers = 1 Million years ea.					
black w/color					
toad charm					
tan skull					

Spacers = 100,000 years ea.					
Big red/orange					
Arrowhead					
gray oblong					
ochre bead					
clear with marks					
Spacers = 10,000 years ea.					
flower skull					
red meat bead					
brown/white cyl.					
radiated aspir.					
Arabic Coin + Shells					
dog bone					
tan bead					
black sphere					
painted rock					
tan breasts					
Green w/ metal					
little black					
bundle of wheat stalks					
Spacers = 500 years ea.					
cat face					
stone					
wood block					
yellow glass sphere					
black tic marks					
wood roller					
om					
Spacers = 200 years ea.					
medallion					
black/white					
square write					
royal purple					
green leaf					
red					
Spacers = 50 years ea.					
tan mark					
blonde swirl					
O					
blue					
metal					
black flat					
black w gold					
red					
Spacers = 10 years ea.					
clear					
orange sphere					
purple					
apple					
globe type sphere					
US flag					
Spacers = 5 years ea.					
Giraffe					
clear sphere					
Black shell					
Clear w/ metal					
blue/white swirl					
red continuum					
glow bead					
red bead					
need double helix					
black with glitter					
white					

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