

## Oregon Star Party Observing Award 2017 Level 3 - Advanced List

Please consult the Advanced Observing List handout for detailed instructions.

Each object has a page telling you what it is, why it's interesting to observe, and the minimum size telescope you might need to see it. I've included coordinates, the constellation each object is located in, and either a chart or photo (or both) showing what the object looks like and how it's situated in the sky. All you have to do is observe and enjoy the challenge.

Even though this is a challenging list you don't need 30 years of observing experience or a 20-inch telescope to be successful, although it does help. If you're not sure you have what it takes, give it go anyway. The only way to see these cool objects is to try. The minimum aperture listed for each object is a rough estimate. The idea is to show approximately what size telescope might be needed to successfully observe that particular object. Sky conditions and your experience matter as much as your scope. The visibility of each object assumes decently good OSP observing conditions.

There are 23 observations to choose from. Descriptive notes and/or sketches that clearly show you observed at least 10 of them are needed to receive the observing certificate. For instance, you can mark up these photos and charts with lines and arrows, and add a few notes describing what you saw. Or go with however you normally record your observations. Please note some objects are worth more than one observation. Observers who successfully observe enough objects to total 10 observations also qualify to purchase a cool observing pin. It's ok to use nebula filters on the planetary, emission and reflection nebulae.

#	Type	Object	Con	RA	Dec	Mag	Alternate Name\Comments
1	Bi-polar planetary nebula	Ethos 1	Cyg	23h36m14s	+02°09'19"	15	See the planetary nebula, counts as one observation. Seeing both of the bi-polar jets count as an additional observation.
2	Galaxy	NGC 5529 companion galaxy, PGC 50925	Boo	22h40m30s	+03°21'30"	16.8	See the galaxy, PGC 50925 which counts as one observation. Excluding PGC 50952, any other companion in the photo counts as an observation.
3	Bi-polar proto planetary nebula	CRL 2688 (Cygnus Egg)	Cyg	21h55m02s	-09°22'24"	14	See the planetary nebula, which counts as one observation. Detecting its polarized light counts as an additional observation.
4	Planetary nebula	PC 22 / PK 051-04.1	Cyg	21h36m52s	+57°30'11"	13.5	See the 20" oblong shape of the planetary, counts as one observation.
5	HII region with reflection and dark nebulae	NGC 6914, vdB 131 and vdB 132	Cyg	20h24m3.83s	+33°52'02"	--	See NGC 6914, vdB 131 and vdB 132 - each one counts as an observation.
6	Planetary nebula	Sh2-71 (PK 36-1.1)	Aqu	18h02m25s	-23°01'04"	12.3	See the horseshoe shape of the planetary nebula, counts as one observation.
7	HII region (emission nebula)	The Propeller Nebula	Cyg	17h57m46s	+04°44'45"	15	See the star full propeller shape, counts as one observation.
8	Chain of four galaxies	Burbridge's Chain	Cet	16h05m07s	+17°44'30"	14.6 14.8 16.0 17.5	See three of the four galaxies - each galaxy counts as one observation.
9	Interacting galaxy pair	NGC 6907 and NGC 6908	Cap	15h46m59s	+17°53'03"	11.9 ?	See both galaxies, counts as one observation.
10	Ultra thin galaxy	UGC 12281	Peg	22h59m12s	+13°26'23"	14.8	See the galaxy, counts as one observation.
11	Visually overlapping galaxies	NGC 450 and UGC 807	Cet	01h15m30s	-00°51'41"	11.6 15.7	See both galaxies, counts as one observation.
12	Planetary nebula	Jones 1	Peg	23h35m53s	+30°28'01"	14	See both arcs of this large planetary, counts as one observation.
13	Interacting galaxies	NGC 5545 NGC 5544	Boo	14h17m5s	+36°34'29"	14	See both galaxies, counts as one observation.