

Inside The Rock

Ark Angel Station Newsletter

Vol V - Edition XI - Nov 2015



**Happy Veterans and Thanksgiving Day Ark Angel
Station!**

Aviation Month

<http://www.holidayinsights.com/moreholidays/november.htm>

Happy 240th Birthday United States Marine Corps!

Semper Fi!





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USMC

Providing the enemies of America an opportunity
to die for their countries since 1775

From the Comm Station,

Greetings and Salutations,

Theme for next month's newsletter is "Your favorite Star Trek experience that you have had or would like to have?"

Any ideas for a newsletter theme email your Com officer.

Happy Thanksgiving to you and yours.

Happy Birthday US Marine Corps (Uncle Sam's Misguided Children)!

Check out the holiday site for all your favorite unknown holidays (link on title page).

Communication Officer Ark Angel Station,

LT Mike Brown

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Q Conundrum

Oh, what are you gonna do?



PLUNGE me to death?

RULES:

- 1) This is a fun trivia game on all things Star Trek so have fun or Worf will have a talk with you.
- 2) Use of the internet, printed material, or any references to find the answer is not allowed! In other words either you know it or you don't **No cheating**. We're on the Honor System.
- 3) One point for each question answered correctly.
- 4) No points lost or gained for incorrectly answered questions.
- 5) Questions for any quiz in the same calendar year as that quiz can be answered until the answers are published in the newsletter but only one answer per person per question.
- 6) One point awarded each month for an article turned in on that month's newsletter theme.
- 7) Ten to twenty questions each month for twelve months.
- 8) Judge's decisions are final (Com officer is the judge)!
- 9) Send your answers to Comm Officer. commo@arkangelstation.com
- 10) Open to all Ark Angel Station Crew and Staff.
- 11) Prize is bragging rights for the next year.
- 12) Failure to follow these rules will result in Assimilation.

Questions:

- 1) What happened to the EMH Doctor in the 'Voyager' episode 'Future's End II'?
 - a) He was tortured
 - b) He became Human
 - c) He was projected into space
 - d) He was decompiled
- 2) What is Beverly Crusher's maiden name?
 - a) Howard
 - b) Jackson
 - c) Jones
 - d) Harvard
- 3) Which 'Voyager' episode brings Neelix face-to-face with the 'destroyer' of his world?
 - a) Jetrel
 - b) Gravity
 - c) The Thaw
 - d) Rise
- 4) What is Seven of Nine's parents' space craft?
 - a) The Raven
 - b) The Falcon
 - c) The Eagle
 - d) The Bluejay
- 5) What does the 'T' stand for in James T Kirk?

- 6) Which 'Voyager' crew member was pregnant during 'The Killing Game'?
 - a) Seven
 - b) Kes
 - c) Janeway
 - d) B'Elanna

- 7) Which crew member asked Geordi to be his best man?
 - a) Worf
 - b) Data
 - c) Picard
 - d) O'Brien

- 8) Is Captain Picard's favorite hot beverage earl grey tea?
 - a) Yes
 - b) No
- 9) What does Neelix sing to Tuvok to cheer him up in the episode 'Tuvix'?
 - a) An Ocampo lullabye
 - b) A Klingon drinking song
 - c) A Talaxian marriage song
 - d) A Vulcan funeral dirge
- 10) Which actor played the young Picard in the episode 'Tapestry'?
 - a) Marcus Nash
 - b) John Simm
 - c) John Nash
 - d) Jack Hunter

Quiz Leader Board

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Science Corner,

In the exciting world of our future (thinking about it anyway) it is fun to imagine how things happening today will affect the rest of our lives and that of our posterity. What will the world be like 100 years from now? Will we have established a human colony on Mars? Will we have traveled to one of the moons around Jupiter or mined an asteroid?

I believe the year 2015 will be the year in which events happening will lead us to say YES to those questions. Why? In a word - SpaceX.

I have mentioned private spaceflight in recent articles, with companies like Bigelow Aerospace, Orbital Sciences (recently merged with ATK) and the Space Launch Alliance (a joint venture of Lockheed Martin and Boeing). But SpaceX seems to be the one company that has recently risen to lead the pack. Since launching their first successful rocket to orbit the earth on 28 September 2008 they have had a perfect record, launching over 15 flights so far and with 14 launches 'on the books' for 2015.

Not only is SpaceX doing well technically, they are offering these services more cheaply than any other space launch company, with a typical launch of payload to orbit for about 61.2 million US dollars (as of August, 2014). ULA charges at least 225 million (per ULA CEO Michael Gass) for their rockets. The Russians (using their Soyuz) charge the US 70 million US dollars per astronaut on flights to the International Space Station.

But these facts are not what should excite you the most.

If flights to space were, say, less than five million per flight - film production companies might pay to have cameras flown to space in order to get a specific shot for a space sequence in one of their films. Even though SpaceX still charges about 65 million to deliver a payload to orbit, the cost of access to space is still extremely high and this makes projects that require going to space very costly - most often prohibitively so. But all that is about to change.

On January 9 this year SpaceX made its' first attempt to land the first stage of one of their Falcon 9 rockets. After reaching an apogee of 50 miles, the rocket made three burns with its' central engine (it has nine total) and returned intact to a landing pad (a big barge) 170 miles out to sea. It used recently added X-Wing fins ('grid fins') to help direct it during decent and maintain its' attitude. It did reach the pad but due to a failure of the hydraulic system, the booster came in an the wrong angle (and too fast). It exploded on the pad. Close, but no cigar.

The next attempt was schedule to occur on February 11th of February, 2015. Adding more hydraulic fluid resolving that issue so the chances for a successful landing on the Autonomous Drone Ship (named, 'Just Read the Instructions') were increased. However, since the rocket was launching its' payload 930,000 miles to Lagrange Point 1 the booster was going to have to use more fuel to go up 80 miles this time, doubling the stress on the first stage when it came down. Also, with less fuel left there would only be enough to perform two de-orbit burns instead of the usual three. Tricky. Unfortunately, sea conditions at the point of the drone ship included 50 foot high waves and it was decided not to land on the drone ship. Instead, SpaceX engineers set a point at sea and made a 'soft' landing on the water as they had in three previous tests. According to reports the rocket landed very gently on the water and in a perfectly upright position (just right for landing!) and within 10 feet of their target. It is expected their chances are "high" for a successful landing on their next attempt with good sea conditions. That is scheduled to happen on April 8th with the 6th launch of supplies to the International Space Station on board a Dragon capsule.

So, looking forward to a time when SpaceX has perfected the landing of their first stage, we can expect that the cost of a payload launch to orbit will be drastically reduced with each re-use of the first stage (which is nearly 3/4 the cost of the rocket at approximately 43 million US dollars). Subtracting the cost of a first stage, the remaining cost is about 18.2 million. Adding in the cost of fuel (about 1/4 million) and refit of the core vehicle, we can expect launches to be reduced to around a third of their current cost or around 20 million.

But that isn't all. The long term plan is to land stage two and the Dragon II capsule as well. Reusing both stages 1 and 2 plus the capsule (for flights that include it) the costs will only include fuel, refurbishment, spaceport rental and personnel fees. Ultimately we may see flights costing less then 3 million US dollars.

How is that for beating the competition? Serious reduction in cost will catapult SpaceX to the top of the orbital flights industry.

Expect the other commercial companies to work their butts off to achieve similar cost savings by perfecting the re-usability of their systems.

The main deterrent to human exploration of our solar system and beyond remains (and will remain) cost. Once launch to orbit costs are managed, we'll be seeing a dramatic increase in our exploration of and presence in space. It doesn't require a lot of imagination to see that a colony on the moon, Mars and possibly one of the moons circling Jupiter will be realized in the next 100 years.

You ready for that?

Science Officer Ark Angel Station,

CDRE John Halliday

Ark Angel Station's Schedule of Events:

Have suggestions for events, let us know. Please email to the Operations Officer
Ops@arkangelstation.com for suggestions or information on any Ark Angel event.

The Schedule is always a changing...but here's a glimpse into the future:

Hope to see you all at one of these events!

REMINDERS:

Inside the Rock Deadlines: All members of the Ark Angel should and the AA Staff must turn in articles by the Tuesday after the Monthly meeting each month. There is a suggested topic; however, you don't have to submit it just for that. Send you articles, photos, poems, stories, etc. to commo@arkangelstation.com.

