

Astronomy for Teenagers



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Abstract

Astronomy tells us things about who we are and how things are made up. It is an important part of our lives and therefore teenagers should also become more interested and aware of this topic (especially the more higher educated teenagers). This brief study is to find existing astronomy resources aimed at teenagers and find what is lacking in these resources, to get the attention of teenagers. The study also look into where teenagers go to; existing portals from other fields such as fashion, music, games, social media and apps. The study also includes points where astronomy communication for teenagers can improve on.

Existing Astronomy resources focused on teenagers

Name	Type	Description	URL
YAE	Club Website	Youth for Astronomy and Engineering	http://www.stsci.edu/institute/conference/youthae
YSA	Club Website	Youth Space Institute	http://sdsa.org/programs/youth-space-institute
De Kometen	Club Website	Youth club astronomy	http://astrolabjongeren.be/
Astronomy Camp	Club Website	Astronomy Camp for Youth	http://www.astronomycamp.org/pages/teencamp.html
IAYC	Club Website	International Astronomical Youth Camp	http://www.iayc.org/
NASA spaceapps Toronto	Challenge	NASA Youth Space Challenge Toronto	http://spaceappstoronto.com/youth.html
Govteen	Forum	Science Forum	http://forums.govteen.com/science-forum/
Astronomy for Youth	Info Website	Astronomy website for youth	http://astronomyforyouth.tripod.com/

Even though Astronomy resources for teenagers exist, they don't use any modern strategies and concepts teenagers are interested in. This is one of the factors for lack of interest in Astronomy among teenagers. Therefore, it is important to look what teenagers are interested in and why. These strategies could then be used for Astronomy communication.

What attracts teenagers

- Modern day teenagers are interested in things like social media, pop music, video games, apps, etc.
- Video games are innovative and modern. They are all unique in some sort (creative, motion technology) which is the reason for their success. Due to social marketing, these games have become even more popular.
 - Popular video game "Call of Duty" used celebrities and movie-like trailer to introduce the game: https://www.youtube.com/watch?v=_BPVV3fwEyY
- Sharing and going through photos is something that attracts teenagers. Facebook and Instagram are popular because teenagers can share photo's easily. Teenagers like to keep each other updated with their daily experiences and they can share these photos with friends on social media.
 - Some of the popular teenage instagram users:
http://www.vice.com/en_uk/read/meet-instagram-teenage-superstars
- YouTubers make it very appealing to teenagers to watch them, because teenagers can relate to these YouTubers (they often talk about fashion or play video games). Youtube has made the channels easily accessible for teenagers.
 - PewDiePie is known for his gaming videos always paired with humor. He is the most popular YouTuber: <https://www.youtube.com/user/PewDiePie>
 - JennaMarbles is known for her fashion videos, also paired with humor: <https://www.youtube.com/user/JennaMarbles>
- Humor is a very appealing aspect to teenagers. Websites like hugelol and bored appeal to teenagers because the websites use humor as means of communication (called memes) to which teenagers can relate to.
 - <http://9gag.com/> The most popular website with memes.
 - <http://hugelol.com/> Another popular website making use of memes.
- Using mobile apps daily is popular among teenagers for chatting, gaming, listen to music, photos, social media, etc.
 - For chatting, Whatsapp and Wechat are popular
 - For gaming, YouTube and Twitch.tv are popular
 - For music, Spotify is very popular.
 - For photos and social media, apps like Facebook, Twitter and Snapchat are popular.

Teenage portals

Name	Type	Description	Popularity	URL
Twitter	Social media	Social media with 'tweets'	500 million+ total users	https://twitter.com/
Facebook	Social media	Social media with a 'wall'	1,15 billion+ total users	https://www.facebook.com/
Google+	Social media	Social media with a 'wall'	500 million+ total users	https://plus.google.com/
Skype	Social media	Voice Communication program	663 million+ users in 2010	http://www.skype.com/en/
Forum Fok!	Forum	Most visited Dutch forum	-	http://forum.fok.nl/
Reddit	Forum	Popular International forum	2,45 million users	http://www.reddit.com/
YouTube	Video website	Most popular video website	1 bln+ unique visitors monthly	https://www.youtube.com/
Hugelol	Jokes website	Popular jokes website	-	http://hugelol.com/
9gag	Jokes website	Most popular jokes website	65mln+ unique visitors monthly in 2012	http://9gag.com/
Angry Birds	Android Game	One of the most popular apps	100,000,000+ Downloads	https://play.google.com/store/search?q=angry%20birds
Fruit Ninja	Android Game	One of the most popular apps	100,000,000+ Downloads	https://play.google.com/store/search?q=fruit%20ninja

Seven learning points to reach teenagers

1. The use of astronomy; what can you do with it?

Most students aren't very aware of what you can do with the study astronomy. If an astronomer could explain high school students that astronomy is more than looking at the stars all day, then more students would be interested in this study.

- What directions can you take with the study, other than watching stars?
- How many people sign up for the study and don't regret it?
- How good is the salary? (always interesting for teenagers)

2. The use of short interesting astronomy videos

Nowadays teenagers like to watch videos, therefore making astronomy videos to interest teenagers is a good move. A visual image in addition to an explanation is much better than just the explanation itself (from a teacher or from a text).

- The videos should be not too long (~3-4min)
- Should also have lots of visuals.
- Shouldn't contain too much information, to keep the attention of the viewer
- Enthusiasm in the video is required (to avoid the 'oh another boring video')
- Vines, popular 7 second videos, could also be used as teenagers can relate to them.
- An example of an interesting video would be: http://www.youtube.com/watch?v=eE_IUPInEuc.

3. Writing short astronomy articles

The interest in astronomy is likely to become bigger if teenagers can read things about astronomy (eg new planet discovered). Teenagers however do not like long reads.

- The articles should be interesting but short and compact. If it's a too long read, teenagers are likely to move on to something else.
- A website like <http://oneminuteastronomer.com/articles/> with more updated activity would be an ideal website.
- Vocabulary used in the articles shouldn't be too difficult.

4. When explaining something, keep the audience engaged

Teenagers aren't interested into listening to a boring talk about astronomy for 60 minutes. They have those kinds of lessons at school. Keeping the audience engaged is key to keeping the interest. Use materials or go outside of the classroom to keep interest.

- It is important to steer away from the standard teaching method.
- Use materials. When explaining planet earth, use a hands on planet earth, when going outside of the classroom, show how a telescope is used.
- There are plenty of ways to keep the audience engaged – be creative.

5. Use a fun computer program or app

Teenagers like to use the computer or use an app. Therefore astronomers should adapt to the interests of teenagers.

- A computer program like Kerbal Space Program could be used, or the citizen science program
- An app (that has to be developed) that is both fun but also educative.

6. Using creative visuals to explain topics/concepts

Images are commonly used in social media and advertisements. Images can say a lot without having to resort to text. They are also less boring to teenagers. Therefore, explaining topics or concepts with visuals is a good idea.

- For an example, “Call of Duty: Advanced Warfare” an upcoming game is introduced through;
 - Trailer: https://www.youtube.com/watch?feature=player_embedded&v=sFu5qXMuaJU
 - Graphics: <https://www.facebook.com/photo.php?fbid=699584870103240>

7. Have teenagers carry out an astronomy assignment

Teenagers like to carry responsibility, as it makes them feel independent. Have a class split up in groups and let them assign a group leader for each group. Then have a certain assignment for them to make.

- The assignment shouldn't be too difficult. They have to have fun with doing the assignment
- The assignment should be introductory to astronomy
- An assignment with the stethoscope or other tools are fun, teenagers have probably never dealt those tools before.

Conclusion

It can be concluded that improvement on the field of Astronomy communication is needed, specifically for teenagers. Teenagers aren't very aware of Astronomy which is important. Astronomers should adapt to modern strategies and start working with these modern concepts, such as using lots of images and making the subject overall more appealing to teenagers.