

# Education & Outreach (E&O) using 3D printing: Immense possibilities

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# Outline

1. Background
2. Target audiences
  - a. Formal Learning
  - b. Informal Learning
3. Current challenges
4. Long term vision: Immense possibilities for Broader Impacts

# Background

- *iDigBio's* role and mission
  - (2 and) 3D images a priority
  - E&O and “downstream users”



- Caveat: My p

# My “Ah ha” moment: ASTC\* 2011



Association of Science and Technology  
Centers  
Annual Meeting, Baltimore

# Target audiences: some examples

- **Formal education (K-16)**
  - 3D printing in schools
  - University: Cyberenabled learning & MOOCs
  - REU & RET experiences
- **Informal education (K to gray)**
  - Museum resource
  - Family learning
  - Science fairs
  - Fossil clubs



# Formal: 3D learning in schools



Skills align with new science standards (NGSS)

# University learning

Distance (cyberenabled) learning can be enhanced by access to 3D images downloaded from Cloud.



# Informal (lifelong) learning

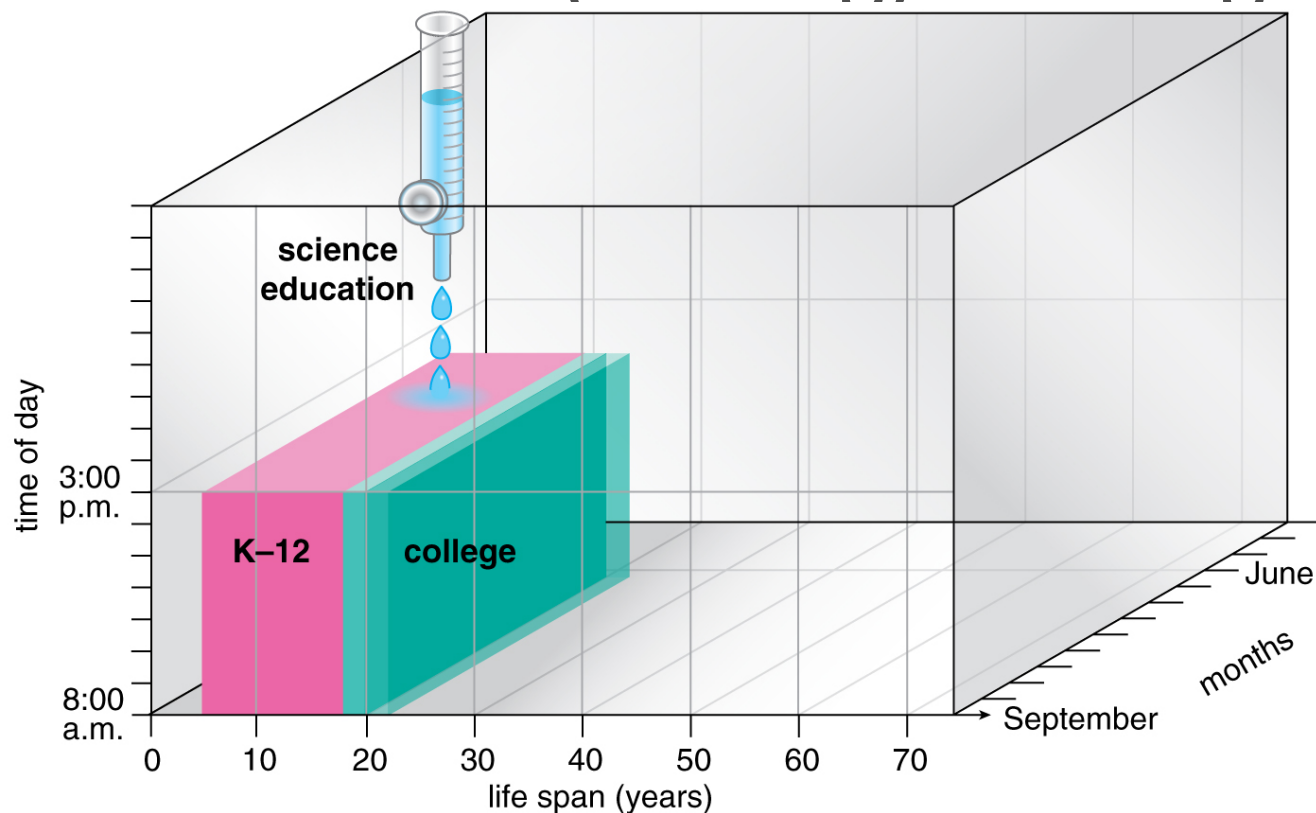


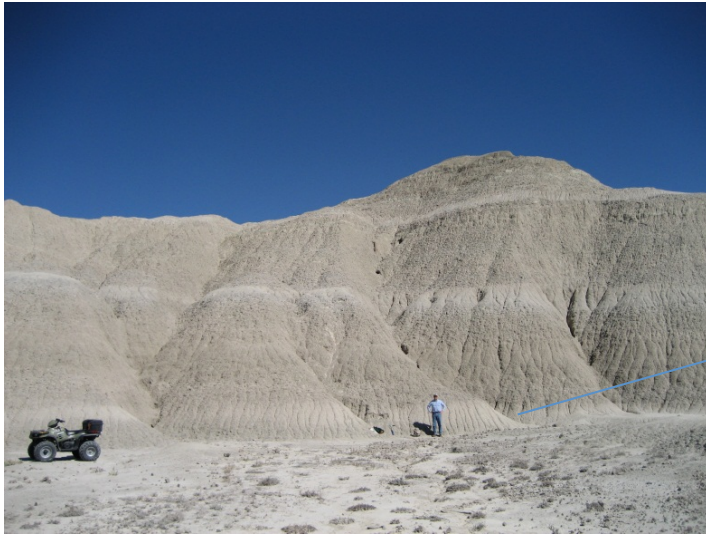
Figure 2. On average, only about 5 percent of an American's lifetime is spent in the classroom, and only a small fraction of that is dedicated to science instruction. Emerging data suggest that the best way to increase the public understanding of science is to reach people during the other 95 percent of their life. (Falk & Dierkling 2010)



# Providing museum resources



# Family & leisure learning, 1



Nebraska badlands

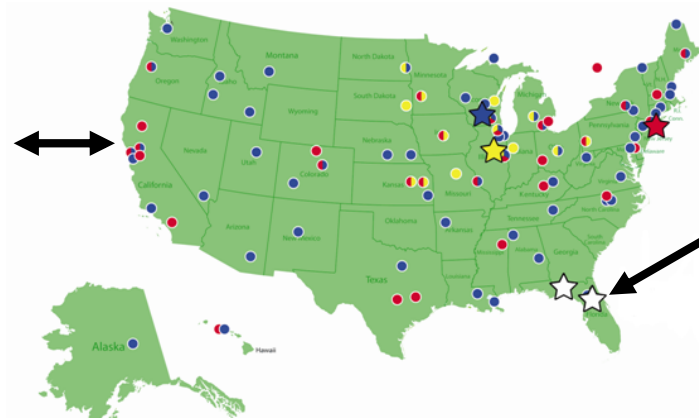


# Family & leisure learning, 2



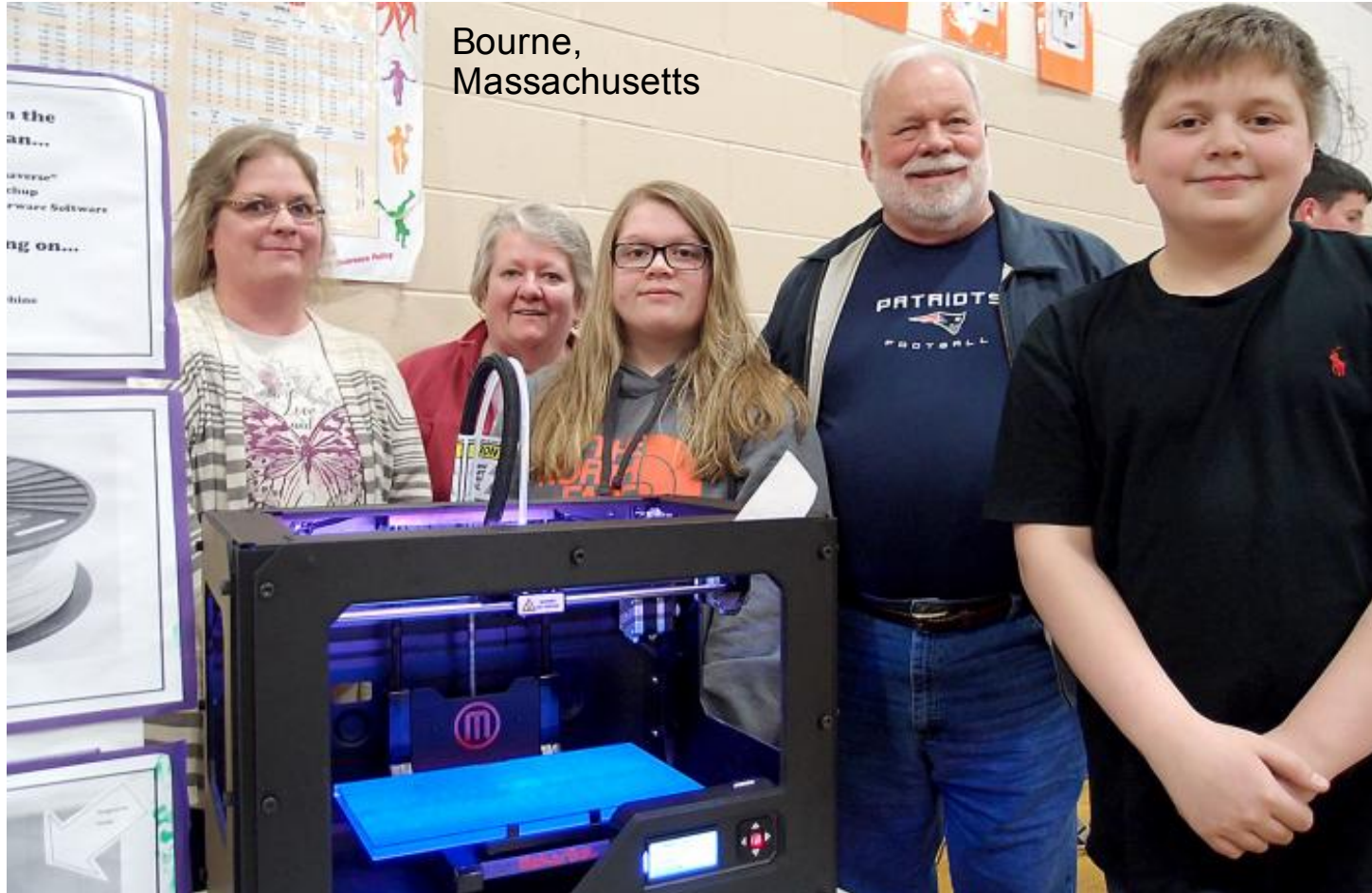
- For printing of output, select Report Style  
- Selecting a search type of "Wildcard" will allow for wildcard searching on all search fields  
- Selecting a search type of "Exact" or not selecting one will cause all search fields to require exact input

Return: 50	Records:	Class	Order	Family	Genus
Style:		Species	Nature of Specimen	Site Key	Site
Sort:		Country	State	County	Epoch
Search Type:		Land Mammal Age	Formation	Catalogue Number	Data Source
					Entire Database
		Reset			



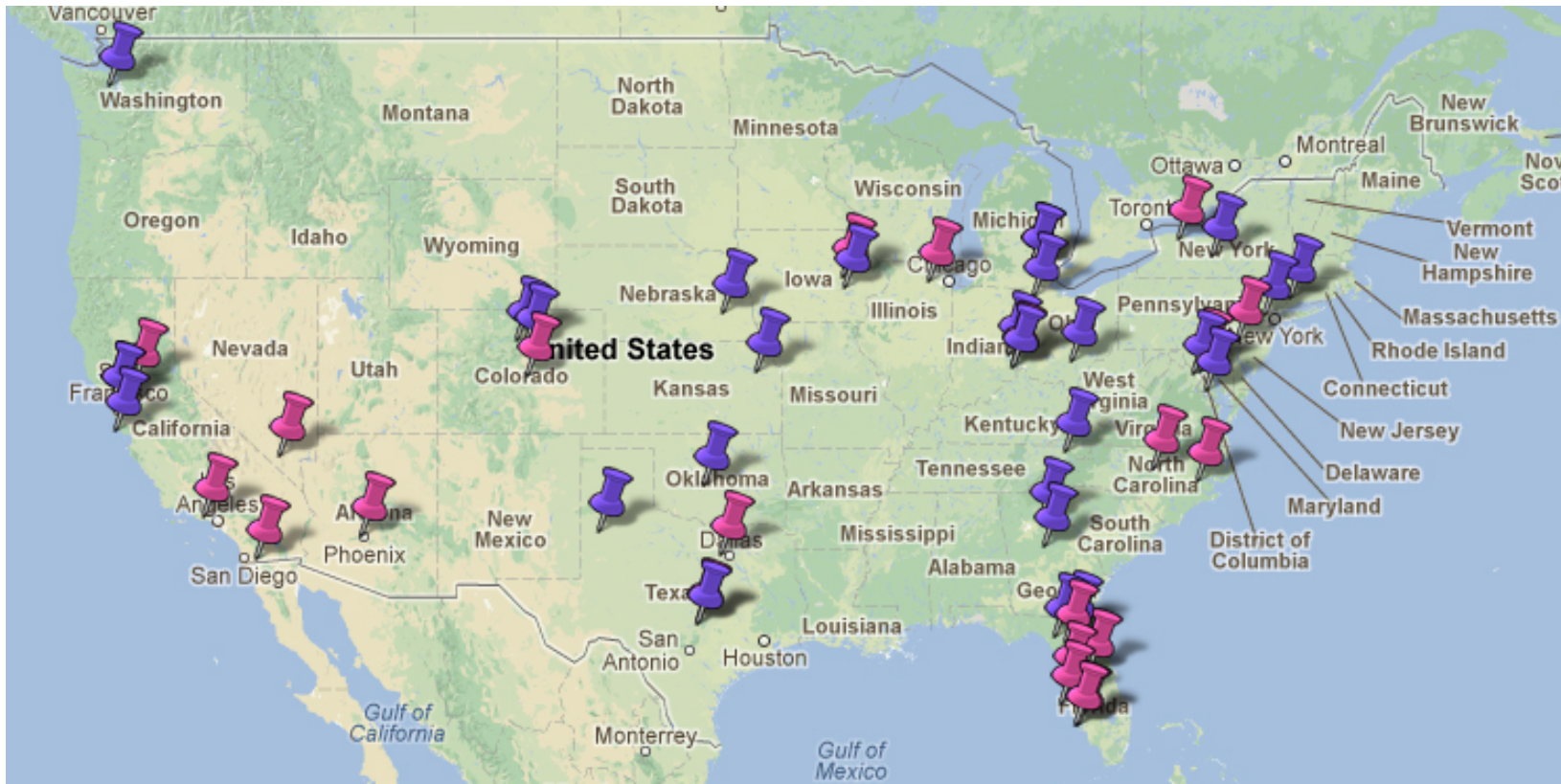


# Science fairs and expos\*



\*Has this been done for paleo?

# FOSSIL\* network



Red = Fossil clubs  
Blue = professional paleontologists



[\\*https://www.flmnh.ufl.edu/myfossil/](https://www.flmnh.ufl.edu/myfossil/)



# Current challenges

- Dark data
- Portals restrict access

The screenshot shows the iDigBio Portal interface. At the top, there is a navigation bar with links for 'About iDigBio', 'Portal', 'Technical Information', and 'Education'. Below this is a green header with 'iDigBio Integrated Digitized Biocollections' and a search bar. The main content area features a search section with a 'Scientific Name' input field and a 'Search' button. To the right, there is a section titled 'iDigBio Specimen Portal' with introductory text and links to 'Specimen Records', 'tutorial', 'Darwin Core', and 'Audubon Core'. Below the search section are two pie charts: 'Specimen Records by Collection Type' and 'Media Records by Collection Type'. A large green box on the right displays the total number of records: 13,268,750 Specimen Records, 1,985,011 Media Records, and 200 Recordsets.

Collection Type	Percentage
Plants	33.66 %
Amphibians and Reptiles	5.11 %
Mammals	0.99 %
Fungi	23.73 %
Fishes	9.91 %
Arthropods	10.77 %
Invertebrates	15.83 %

Collection Type	Percentage
Plants	37.77 %
Fungi	59.29 %
Arthropods	2.94 %

13,268,750 Specimen Records  
1,985,011 Media Records  
200 Recordsets



# Final Thoughts

Long term vision: Immense possibilities for Broader Impacts