

## BIOTECHNOLOGY COURSE CONTENT: HOW DO WE STAY CURRENT?

Biotechnology is constantly changing. While the core concepts of using DNA, RNA, proteins, and cells as tools remain the same, new developments are constantly emerging. From CRISPR to stem cell therapies to wastewater DNA testing, there is always so much to learn. Even new twists on old technology (looking at you RT-qPCR, Next-Generation Sequencing, and genetic genealogy) can make staying up-to-date feel overwhelming. How does a biotech teacher stay on top of these developments?

First, I will say that there are way too many developments to be an expert on all of them. Second, please do not feel that if you are not aware of all of them or, further, do not incorporate them into your curriculum that you are failing your students. I strongly believe that high school biotech students should be focused on developing strong lab skills and scientific inquiry skills. New topics will definitely be covered in college and graduate school should your students elect to continue studying science. At the same time, new developments can serve to pique their interest so the question remains - how can we stay current?

There are too many resources for an exhaustive list, but here are a few of the ones that I use:

1. Scientific Journals - In particular, I use the journal [Science](#). You do not need a subscription to access their “News from Science” section. These articles are summaries of current peer-reviewed articles and are intentionally written for non-professional scientists. There is a lot of great information and so easily accessible that I often have students read the articles directly.
2. New Reports - The [Science section of the New York Times](#) also does an excellent job of providing scientific information in a readable format. [National Public Radio](#) also does a great job of reporting scientific developments. What I really appreciate about their articles is that they often have an audio version of their reports. These are usually relatively brief (about 7 - 8 minutes) which are perfect for use in a class presentation.
3. Education websites - In particular, I really love the work done by the Howard Hughes Medical Institute and their [BioInteractive](#) resources. They focus on having students analyze and reflect on real data. They have entire lessons including activities, videos, worksheets and more. Whether you choose to use the entire lesson or modify them to suit your needs, this is a very rich resource.

I will also give a shout outs to the educational resources at [Bio-Rad](#), the [DNA Learning Center at Cold Spring Harbor](#), and the [Genetics Science Learning Center at the University of Utah](#). All of

these website have excellent videos which detail basic concepts in biotechnology and animations to explore how various labs work.

4. Podcasts - Going for a walk or a drive? There are so many science podcasts from which to choose. One that I listen to on a fairly regular basis is [DNA Today](#). It is hosted by a genetic counselor and discusses a variety of topics surrounding that field. I learn so much about genetic disorders, the families affected by these disorders, and how genetic testing is done. There is always something of value that I can bring back to my biotechnology and biology students.

Again, this list is not exhaustive and there are many more sources to utilize. In particular, I'll plug our [teacher courses at BTCI](#). Whether it is **Biotechnology: The Basics** (June 26 - 30) **Biotechnology: Beyond the Basics** (July 10 - 14), I cannot emphasize enough the value of learning from other teachers. I am inspired each summer by the shared experiences of other teachers and always end up redesigning some aspect of my courses based on their insights. Needless to say, I highly recommend them both and would love to see you there.

What resources do you use? I will post this question on our LinkedIn [BTC Institute Biotech Teacher Network page](#) and am looking forward to your responses.

Until next time.