

LifeSciTRC.org Resource: Chants and Jingles for Physiology Core Concepts

Gregory J. Crowther, Ph.D. – Everett Community College (Everett, WA) – February 2019

As biology instructors, we regularly remind our students of certain “core concepts” or “big ideas” that form the heart of our courses. In physiology, these core concepts have been defined by authors such as Erin Amerman (2016) and Joel Michael et al. (2017). But how can we emphasize the centrality of these core concepts in a way that is pleasant, and perhaps even fun? One option among many is to use bits of chanting or music as recurring motifs. The approaches outlined below cover four core concepts emphasized by both Amerman (2016) and Michael et al. (2017): cell-cell communication, flow down gradients, homeostasis, and the intertwining of structure and function. However, these approaches can also be applied to any other agreed-upon set of concepts or principles.

Approach 1: Play and Discuss a Song Covering All Targeted Core Concepts

I have taken the liberty of writing a song, “A Physiologist’s Blessing,” which briefly highlights the four above-mentioned core concepts in the context of wishing the students good health and good luck. The song could, for example, be introduced and discussed at the start of the term (a link to sample study questions is below), then revisited at the end of the term.

- Lyrics/guide with study questions:
<http://faculty.washington.edu/crowther/Misc/Songs/blessing.shtml>
- Music video: <https://www.youtube.com/watch?v=wXZuj8L806Q>
- MP3: <http://faculty.washington.edu/crowther/Misc/Songs/MP3/Blessing2.mp3>
- Karaoke track:
http://faculty.washington.edu/crowther/Misc/Songs/Karaoke/Blessing_Backing.mp3
- Sheet music:
<https://www.noteflight.com/scores/view/a7e0165cbb5ece783b8df39db586ebd9323197ab>
- Blog entry on using this song or creating your own version:
<https://hapsblog.org/2018/08/23/starting-on-a-high-note-a-first-week-of-fall-ap-challenge/>

Approach 2: Use Brief Chants to Flag Core Concepts Throughout the Term

We want students to appreciate how certain core concepts come up again and again throughout a course. One easy way to highlight the recurring nature of these core concepts is to have each appearance of a core concept trigger a brief, previously learned class chant (since chanting is easier than singing). For example, amidst a discussion of Poiseuille’s Law, a student might raise her hand and say, “Professor, is this yet another example of a flow down a gradient?” The professor says, “Yes indeed – let’s do our chant!” And the class chants: “High to low! High to low! Gradients drive most any flow!” In less than 30 seconds, the students will have actively participated in a brief “diversion” that actually serves as a valuable reminder.

- “Cells Tell Cells” (core concept: cell-cell communication)
 - MP3: <http://faculty.washington.edu/crowther/Misc/Songs/MP3/CTC.mp3>

- Sheet music:
<https://www.noteflight.com/scores/view/eda2314d4074396442e0fbe7d5e758cd86478e6e>
- “*Form Follows Function*” (core concept: structure-function)
 - MP3: http://faculty.washington.edu/crowther/Misc/Songs/MP3/FFF_brief.mp3
 - Sheet music:
<https://www.noteflight.com/scores/view/b3f6c5a1ac9721ab09b14bd7f8798787a0c123fe>
- “*High to Low*” (core concept: flow down gradients)
 - Chant MP3: http://faculty.washington.edu/crowther/Misc/Songs/MP3/flow_chant.mp3
 - Chant sheet music:
<https://www.noteflight.com/scores/view/ed1db0d8e9352dbd4afd0501690dfcd9293345ba>
 - Jingle MP3: http://faculty.washington.edu/crowther/Misc/Songs/MP3/flow_jingle.mp3
 - Jingle sheet music:
<https://www.noteflight.com/scores/view/3b2b65dcbcc3a625b7eee88f1e7ad498f8c1dabd>
- “*Homeostasis*” (core concept: homeostasis and negative feedback)
 - MP3: <http://faculty.washington.edu/crowther/Misc/Songs/MP3/homeo.mp3>
 - Sheet music:
<https://www.noteflight.com/scores/view/9dbf965651eec97a4b243ebacfa7b0f4b05d0c69>

Approach 3: Like Approach 2, But Incorporate Students’ Creativity

One doesn’t have to be an experienced songwriter to create a catchy five-second chant. Rather than imposing my (or your) chants on the students, why not teach them the core concepts and let them write the chants? Teams of students could come up with options for each core concept, and then the class could vote on which favorites to adopt for the rest of the term.

Alternatively, if you are partial to pre-written chants such as those listed above, consider having students design a content-related “pose” or “dance move” to accompany each chant. For example, for the core concept of cell-cell communication, students might cup their hand to their ear as if listening, or might have one hand “talk” to the other hand. As with the chant itself, the pose or move should invoke the key idea concisely yet vividly.

Students challenged to create these memes will be thinking critically about what the core concepts really mean and how to represent them accurately. Their learning will advance accordingly.

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References

E.C. Amerman (2016). *Human Anatomy & Physiology*. Boston: Pearson.

J. Michael, W. Cliff, J. McFarland, H. Modell, and A. Wright (2017). *The Core Concepts of Physiology: A New Paradigm for Teaching Physiology*. New York: Springer.