

RAFTing with Raptors: Connecting Science, English Language Arts, and the Common Core State Standards

RAFT writing assignments can help students learn content while developing writing and thinking skills.

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Forty-five states and three territories have adopted the Common Core State Standards (CCSS), and most states are now in the process of implementing them (CCSS Initiative, 2012). CCSS for English Language Arts (ELA) & Literacy in History/Social Studies, Science, and Technical Subjects, or CCSS for ELA/Literacy, are designed to extend literacy learning beyond ELA to other content areas. The CCSS for ELA/Literacy are not intended to replace content standards but are designed to supplement them. The result of this effort is a framework for integrated learning consistent with This We Believe (National Middle School Association, 2010). (Editor's note: This will require targeted professional development for teachers in all content areas, as Gilles, Wang, Smith, and Johnson discuss in this issue.)

The integration of literacy skills with science content has been increasingly emphasized in science education (see, e.g., Bricker, Rogowski, Hedt, & Rolfe, 2010; Sinatra & Broughton, 2011), and recent literature has featured various writing strategies that have been successful for integrating ELA and science content (Bintz, Wright, & Sheffer, 2010; Kokkino, Ortiz, Pappas, & Varelas, 2008). This article explores using the RAFT strategy (Role, Audience, Format, Topic) for writing in science classes. The framework of the RAFT strategy will be explained, and connections with CCSS for ELA/Literacy will be discussed. Finally, there will be a discussion of a professional learning experience for teachers in which they implemented the CCSS for ELA/Literacy in middle grades science classes. The teachers used RAFT strategies to develop instruction about birds of prey, or raptors.

RAFT writing

RAFT is a common writing strategy that was introduced by Nancy Vandervanter, a middle grades English teacher, to encourage students to write from different perspectives (Santa, 1988). *Role* refers to the position of the author of the piece that is being written. The role does not necessarily have to be that of a human. The role could be from the perspective of an animal, a plant, a rock, a building, or any object. *Audience* is the target group for whom the piece is being written. Once again, the audience does not necessarily have to be human. The *format* can vary widely: a wanted poster, a love letter, an obituary, or a "conversation" between inanimate objects. The *topic* is limited only by the imagination of the writer. The RAFT strategy can be extended to RAFTS by including a focus on strong verbs that grab the reader's attention. The emphasis on *strong* verbs enables the students to focus their efforts in a particular way. While RAFT was designed to facilitate student writing, using a RAFT strategy with middle grades students is especially effective because it supports reading and writing across the curriculum (Melin & Schiller, 2011; Shellard & Protheroe, 2004) and provides opportunities for students reading below grade level to improve their reading skills (Fisher & Ivey, 2006).

RAFT and CCSS for ELA/Literacy

CCSS for ELA/Literacy has reading standards for informational texts for each grade level that require students to analyze a text; draw inferences from a text; analyze interactions between individuals, events and ideas; and determine an author's point of view (CCSS Initiative 2010). Furthermore, the writing standards for grades 6, 7, and 8 require students to "Write informative/ explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content" (CCSS Initiative, 2010, p. 42). RAFT writing requires students to draw inferences and analyze interactions in the texts as they develop their ideas. As they complete RAFTs, students will write

texts that fulfill the requirements of the CCSS for ELA/Literacy writing standards. In addition, RAFTs can support reading development, as teachers can tailor multiple RAFT assignments to a single informational text to enable students to gain a deep understanding, conduct a thorough analysis, and draw insightful inferences from the source.

RAFT in science instruction

A variety of writing strategies have been implemented in science classes to integrate and assess science literacy, including writing in small-group literature circles, keeping science journals, and creating nonfiction science books (Kokkino, et al., 2008). For example, the RAFT strategy has been used in science classes to enable students to address environmental literacy and citizenship and to develop skills that will be beneficial beyond the classroom (Groenke & Puckett, 2006).

RAFTing with Raptors

RAFTing with Raptors was developed through the joint efforts of three entities: The Center of Excellence for Adolescent Literacy & Learning at Clemson University; the Aiken Writing Project (AWP) at the University of South Carolina Aiken; and the Center of Excellence in Middle-level Interdisciplinary Strategies for Teaching (CEMIST), at the Ruth Patrick Science Education Center (RPSEC). The RPSEC provides various science and mathematics programs for students and teachers in the Aiken, South Carolina area and beyond. With the introduction of the CCSS for ELA/Literacy and the interdisciplinary emphasis of CE-MIST, the RPSEC began integrating other content areas into the science and mathematics programs, including ELA and literacy. During professional development activities in Aiken County Public Schools, RAFT writing strategies resonated with the teachers and became more widely used at the partnering schools.

The confluence of RAFT, the integration of science and ELA, and the introduction of CCSS resulted in the use of RAFT with a focus on science literacy during the annual AWP Summer Institute. For teachers to employ a new instructional strategy, they must understand the supporting theory and observe the strategy in practice (Richards & Skolits, 2009). Thus, teachers in the AWP Summer Institute were introduced to the theoretical background of RAFT strategies, were given examples of RAFTs in practice, and were asked to create RAFTs based on a science theme. Examples of RAFTs developed during the Summer Institute are included in **Figures 1, 2, and 3**.

Students in schools near the University of South Carolina Aiken have had opportunities to visit the RPSEC for a variety of field trip experiences. One of the more popular programs has been "Ravenous Raptors." Students are introduced to a variety of species of raptors, or birds of prey, by observing images of them projected on a screen and by interacting with bird field guides. This style of informational text provided an ELA connection to the science content presented. Students were engaged in such a way that the questions they answered relied on them having read the text with care (Student Achievement Partners, 2012). After the introduction to raptors, students were able to explore salvaged body parts from a variety of raptor species. Finally, the students were introduced to and permitted to observe live raptors housed at the RPSEC. As a follow-up activity, guidelines for a RAFT were developed and provided to the teachers of the students who attended the Ravenous Raptors program (**see Appendix**).

Conclusion

RAFT writing encourages creative thinking and motivates students to demonstrate understanding in a nontraditional, yet informational, written format. This strategy works in all subject areas and is great for differentiation; it can be adjusted for any topic or skill level. The students have roles to play and, as they think from the perspective of those roles, they have to communicate to given audiences using the specified format and topic. This strategy requires students to process information and use critical thinking rather than just writing answers to questions. This helps fulfill the emphasis on the shared responsibility for students' literacy development that is promoted by the CCSS Initiative (2010) and provides a way for content area teachers to employ ELA strategies to improve student learning in all subjects.

This article reflects the following *This We Believe* characteristics: Meaningful Learning, Multiple Learning Approaches, Varied Assessments

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