Learning:
- Is an acquired skill – 2
- Is deeper and more durable when it is effortful – 3
- Try solving a problem before being taught the solution – 4
- All learning requires a foundation of prior knowledge – 5
- Putting new knowledge into a larger context helps learning – 6
- Extracting the key ideas from new material and organizing those ideas into a mental model provides an advantage in learning – 6
- Every time you learn something you change the brain – 7
- When learning is harder it last longer – 9

Knowledge:
- Without knowledge you don’t have the foundation for the higher-level skills of analysis, synthesis, and creative problem solving – 18
- One cannot apply what one knows in a practical manner if one does not know anything to apply – 18

Retrieval practice:
- Is more effective learning strategy than review by rereading – 3
- Space out practice at a task and get a little rusty between sessions – 4
- Interleave practice of two or more subjects – 4
- The use of testing as a tool for learning: thinking of testing as practicing retrieval of learning from memory, rather than testing – 19
- The power of active retrieval is to strengthen memory – 19
- Two benefits from retrieval practice – 1) exposes what we know and don’t know; 2) recalling what has been learned causes the brain to reconsolidate the memory and strengthen the connections to it – 20
- Various forms of retrieval practice: low-stakes quizzing, self-testing, spacing out practice, interleaving practice, trying to solve a problem before being taught, distilling the underlying principles or rules that differentiate the types of problems – 21
- Retrieval-practice effect – strengthens and multiplies the neural routes by which the knowledge can later be retrieved – 29
- Immunizing against forgetting – the use of retrieval practice – 32
- Other forms of retrieval practice: flash cards and games – 36

Feedback
- Giving feedback on wrong answers to test questions strengthens retention more than testing alone does; evidence shows that delaying the feedback briefly produces better long-term learning – 39
- Immediate feedback – is like the training wheels on a bicycle: the learner comes to depend on the continued presence of the correction – 40
Reflection
- Is a form of practice – 26

Forgetting
- Psychologists have been plotting “forgetting curves” since 1885
- We lose approximately 70% of what we’ve just read or heard in very short order; the remaining 30% takes a little longer – 28

Elaboration
- If you practice elaboration there is no known limit to how much you can learn – 5
- Is the process of giving new material meaning by expressing it in your own words and connecting it with what you already know – 5

Rereading text & massed practice
- Is among the least productive – 3
- It is believed that if you expose yourself to something enough times, you can burn it into memory. Not so. – 9
- Gains achieved during massed practice are transitory and melt away quickly – 10

Judging learning
- We are poor judges of when we are learning well and when we’re not – 3
- There are unknown unknowns – there are things we do not know we don’t know – 17
- Poor metacognition: what we know about what we know – 16
- Liabilities: a failure to know the areas where learning is weak; a preference for study methods that create a false sense of mastery