

## GENDER LEARNING DIFFERENCES: ANSWER KEY

1. Newborn girls are instinctively more social than boys. F  
*Overall, boys and girls are equally attentive to faces in the newborn period, and they do not differ in the amount of eye contact they make with adults.*
2. Newborn boys are instinctively more object-oriented than girls. F  
*Based on many studies of newborn object recognition and perception, boys and girls do not differ in their attentiveness to inanimate objects or understanding of their physical properties.*
3. Girls begin talking about one month earlier than boys. T
4. Two-year-old boys are twice as likely to exhibit physical aggression (biting, hitting, kicking) as toddler-aged girls. F  
*According to their mothers' reports, 2- to 3-year-old boys are more likely than girls to bite, hit, or kick another child, but the difference is only about 25%, not 2-fold.*
5. Preschool-aged boys cry less than girls. F  
*Boys cry as much as girls until about 4 or 5 years of age, but then gradually learn that it is considered weak or unmasculine. By age 11, boys cry about 20% less than girls, and by age 16, about 40% (but there is no evidence that the onset of puberty produces a sudden change in crying).*
6. Spatial skills like mental rotation exhibit the largest of any cognitive sex difference. T
7. Girls perform better than boys in reading in every country that participates in the PISA exam. T
8. Boys perform better than girls in math in every country that participates in the PISA exam. F  
*Boys perform better in most countries, but the size of the difference varies substantially; in two countries participating in the last PISA (Iceland and Thailand), girls outperformed boys in math.*
9. Boys have larger brains on average than girls. T
10. Girls' brains finish growing earlier than boys' brains. T
11. Females typically have a larger corpus callosum than males. This large white matter pathway interconnects the two cerebral hemispheres and permits better multi-tasking. F  
*The corpus callosum does not differ significantly between males and females, according to meta-analysis of 49 studies. Nor is there any empirical evidence that females are better "multi-taskers," in spite of much popular belief.*
12. Men's resting brain activity is more left-lateralized than women's. T
13. Gender differences in the brain demonstrate that behavioral gender differences are hard-wired. F  
*Differences between men and women's brains could be due to neuroplasticity—changes in brain structure and function that are due to learning and experience. Unless a sex difference is identified in very young infants (or has been explicitly linked to hormonal or genetic factors—a criterion that has yet to be met in human brain research) it is not possible to determine whether it is the result of nature or nurture.*

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14. Prenatal testosterone influences children's preference for traditional male playthings. T
15. Prenatal testosterone influences sexual preference in adulthood. T
16. Prenatal testosterone affects verbal ability. F  
*There is no good evidence for this popular belief. Girls with congenital adrenal hyperplasia (CAH), who are exposed to very high levels of testosterone before birth, do not exhibit impaired verbal ability.*
17. Rising levels of estrogen at puberty enhance girls' verbal skills. F  
*Attempts to link the hormonal changes at puberty to cognitive differences have thus far come up negative. Although some studies find subtle shifts in verbal or memory performance across the menstrual cycle, other studies have failed to confirm this effect (especially in young women), and any effect on cognition by hormones is likely too small to be of real-world significance.*
18. Rising levels of testosterone at puberty elevate boys' spatial and math ability. F  
*Similarly, studies attempting to link adult fluctuations in testosterone to cognitive skills are equivocal. For example, transsexual men do not experience sudden changes in cognitive ability when they begin the strong hormone treatments to transition from a female to male body.*
19. Rising levels of testosterone at puberty elevates both boys' and girls' sex drive. T
20. Mothers talk more to their young daughters than to their young sons. T
21. When boys are successful in school, their parents and teachers are likelier to attribute their success to hard work; when girls are successful, adults are likelier to attribute it to innate talent. F  
*It is the other way around: parents, teachers, and students themselves are likelier to attribute girls' achievement to hard work ("doing their homework") whereas boys' achievement is more often attributed to innate intelligence. Girls and boys also endorse these beliefs about their achievement.*
22. Parents discourage risk-taking more in daughters than sons. T
23. Boys and girls learn differently. F  
*This common belief is not supported by actual laboratory studies of learning and memory performance. There is much more variation in learning ability and style among boys or among girls than difference between groups. Furthermore, the whole notion of "learning styles" has come under serious question. Although students may profess to prefer certain styles (e.g., visual versus auditory; active versus reflective) research has failed to confirm that pedagogy geared toward students' professed learning preferences is more effective than generally accepted best practices for teaching particular subject matter.*