



Report Card

Name: Rujuta Mhaswade

Grade: Six

Academic Year: 2020-21

Subject	Instructor	Grade
Mathematics, Introduction to Proofs, and Problem-solving	Kedar Mhaswade	A-
Introduction to Science (Focus on Chemistry)	Kedar Mhaswade	A-
English (Grammar and Basic Composition)	Kedar Mhaswade	A-
हिंदुस्थानी संगीत - १ (Indian Classical Music - 1)	Deepa Joshi and Kunda Joshi	A
Art and Craft	Deepa Joshi	None!

Comments (With Constructive Feedback)

1. **Mathematics, Introduction to Proofs, and Problem-solving.**

Rujuta took great interest in math this year. We followed **Arithmetical Excursions** [1] which introduced some new concepts and reintroduced known concepts. She is now pretty comfortable with the Place-Value System in various positive integer bases, Operations on Integers, Axioms of Arithmetic like Commutative and Associative properties of Addition and Multiplication and Distributive property of Addition and Subtraction, the Long Division Algorithm, the Fundamental Theorem of Arithmetic (I still remember her excitement about the FTA and its use in the reduction of fractions), Laws of Exponentiation, Deductive Reasoning and the Notion of “Proofs”

in Mathematics, Fractions, Large Numbers, and First Steps in Algebra. There is, of course, a lot to learn, but we think she took great interest, solved problems, completed exercises, took notes, and enjoyed her time.

Perhaps she should focus a bit more on problem-solving. She is actually very tenacious and likes the challenge and excitement that problems pose. When we present a problem, she is more than excited to solve it, toil through the experience. Perhaps she should explore problems on her own. We tried NRICH problem sets [2], but she couldn't do it regularly. We urge her to take a look at problems and find patterns that make those problems. Of course, this is most enjoyable when it is done voluntarily.

Her term-end exam [3] was really difficult. She scored about 60% in it and we are really proud of her. Though she was a bit disappointed by her performance in that exam, when we asked her if she wanted an “easy exam with direct application of learned content” or a “tough exam with surprising twists and turns”, she chose the latter. This means that she is here to learn and grow, rather than *only* excel at examinations.

She also read “Alice’s Adventures in Wonderland” and “Through the Looking Glass” [4] with great interest and dedication. We are glad that she thoroughly enjoyed these books that are at the intersection of lasting literature and mathematics.

For the next year, she should brush up what has been learned till now, look at where in the term-end examination she could have improved, and be as enthusiastic as ever to learn something new in a friendly environment.

2. **Introduction to Science (Focus on Chemistry).** Teaching Science to children is hard. The process of Science, like any other subject, starts with an interest in figuring out or understanding how things

work. And, as such, it takes, among other things, curiosity, tenacity, imagination, skepticism, patience, and playful nature to learn and spend time well in Science.

We picked up Robert Brent's Golden Book of Chemistry Experiments [5] and came to know of the Scientific Method, the Periodic Table of Elements, Basic Properties of matter like Mass, Volume, and Density, Units and Measurements. We studied some chemical elements in some detail. We also looked at chemical equations and balancing reactions. We performed several experiments, most notable of which was the "Electrolysis of Water". Rujuta has maintained the lab of Chemistry very meticulously. We are really thankful to her for that!

The Science term-end exam [6] was also tough and although we asked several thought-provoking questions, she fared well. We are proud of her result. We'll perhaps take up chemistry [7] again next year. She should brush up what we did last year before we start the next year.

3. **English (Grammar and Basic Composition).** We picked up Warriner's book for English Grammar [8]. She became pretty comfortable with Grammar (including Parts of Speech, Prepositional Phrases, Complements, and Using Parts of Speech Correctly), Mechanics, and some Composition. We also read and reread some books like Alice in Wonderland [4], Stuart Little, and Charlotte's Web. Check out her notes [10] that have become really a dependable source for us as well!

She worked hard on the English term-end exam [9]. We are very satisfied with the result. She should, however, work more on her reading and creative writing. She should apply more in her own writing what she learned through the year. Writing well is very difficult and although we understand that

Vigorous writing is concise. A sentence should contain no unnecessary words, a paragraph no unnecessary sentences, for the same reason that a drawing should have no unnecessary lines and a machine no unnecessary parts. This requires not that the writer make all sentences short or avoid all detail and treat subjects only in outline, but **that every word tell**.

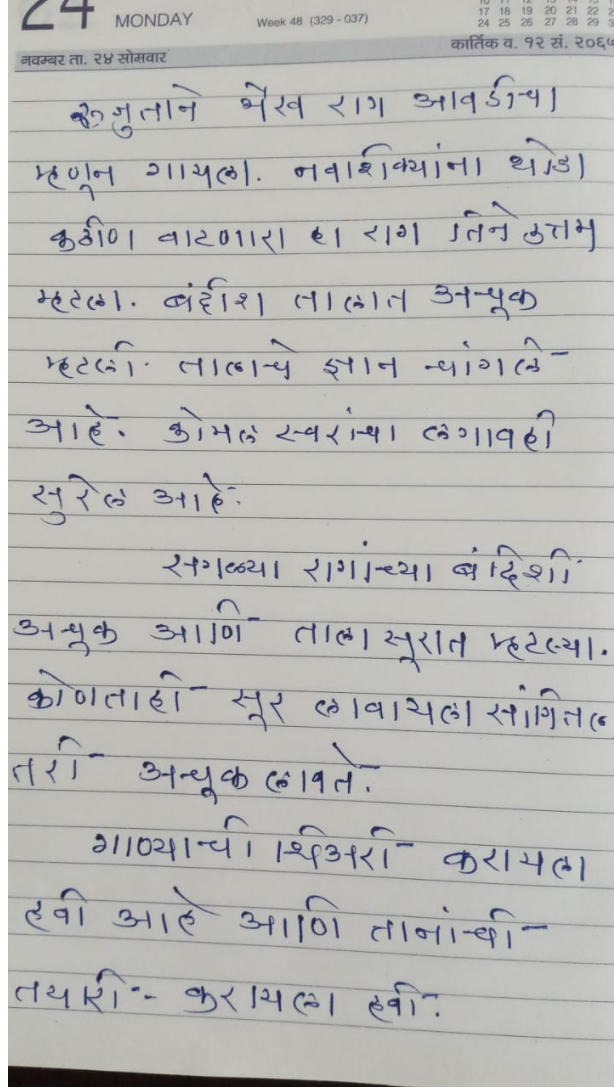
– E. B. White

, it is important to keep up the practice of writing. And it is hard to imagine writing more than reading. More books should be picked up in order to enjoy the writing process even more.

4. **हिंदुस्थानी संगीत - १ (Indian Classical Music - 1)**. Deepa Joshi taught her the basics of Indian Classical Music. Rujuta learned अलंकार (arrangement of some or all of the 7 fundamental frequencies: सा, रे, ग, म, प, ध, नि) and six राग (Ragas) in Indian Classical Music: भूप (Bhoop), यमन (Yaman), दुर्गा (Durga), भैरव (Bhairav), बागेश्री (Bageshree), and देस (Des). In each राग, she learned its basic rules - आरोह (Aroha), अवरोह (Avaroha), and पकड (Pakad). She learned a few signature vocal pieces (बंदिश) representing each राग. She also learned to sing them in three different ताल (rhythms) on the तबला (tabla) - तीनताल (Teentaal), एकताल (Ektaal), and दादरा (Dadaraa). She can effectively use iTablaPro [11], an amazing app for the iPhone, to set up referential frequencies and notes. One admirable thing is every once in a while she practices her music on her own; it has become a developing hobby for her!

See Mrs. Kunda Joshi's (an accomplished practitioner of Indian Classical Music and a great teacher of it) assessment (in Marathi) of Rujuta's Term-end exam performance in Figure 1.

We are encouraging her to appear for the प्रवेशिका प्रथम (Entrance Exam: 1) exam of the well-known गांधर्व संगीत महाविद्यालय (Gaandharva music school).



Figure~1: Mrs. Kunda Joshi's Assessment of Rujuta's Performance

5. **Art and Craft.** Rujuta created many rangolis this year. She recreated some of them on GeoGebra [12]. She also learnt about two Indian folk arts - वारली (Warli) and मधुबनी (Madhubani). She showed some interest in मधुबनी and we created five paintings together. Two of them were about two Indian festivals - दसरा (Dasara) and दिवाळी (Diwali). She worked really hard on those two paintings.

References

- [1] Henry Bowers, Joan E. Bowers. *Arithmetical Excursions, An Enrichment of Elementary Mathematics*. Dover Publications Inc. New York. Available to borrow digitally at archive.org.
- [2] Innovative Collaboration between Mathematics Faculties and Education at the University of Cambridge. On the WWW at nrich.maths.org.
- [3] Mathematics Term-end Exam 2021. Free Learner's School. Available at [GitHub](https://github.com).
- [4] [Alice's Adventures in the Wonderland and Through the Looking Glass](#). Lewis Carroll. Annotated by Martin Gardner. Clarkson N. Potter Publishers. 1960.
- [5] [The Golden Book of Chemistry Experiments](#). Robert Brent. Illustrator: Harry Lazarus. Annotated by Martin Gardner. Clarkson N. Potter Publishers. 1960.
- [6] Science Term-end Exam 2021. Free Learner's School. Available at [Google Docs](https://docs.google.com).
- [7] Middle School Chemistry – Big Ideas about the Very Small. Available at [ACS: Chemistry for Life](https://acs.org).
- [8] English Grammar and Composition. John. E. Warriner and Harcourt Brace Jovanovich. Available to borrow digitally at archive.org.
- [9] English Term-end Exam 2021. Free Learner's School. Available at [Google Docs](https://docs.google.com).
- [10] Rujuta's Notes of Warriner's English. Free Learner's School. Available at [Google Docs](https://docs.google.com).

[11] iTablaPro iPhone App. Available at [Apple App Store](#).

[12] GeoGebra graphic calculator. Available at [GeoGebra Website](#).