

# YOUR GUIDE TO ROBOTHINK

# PROGRAMS



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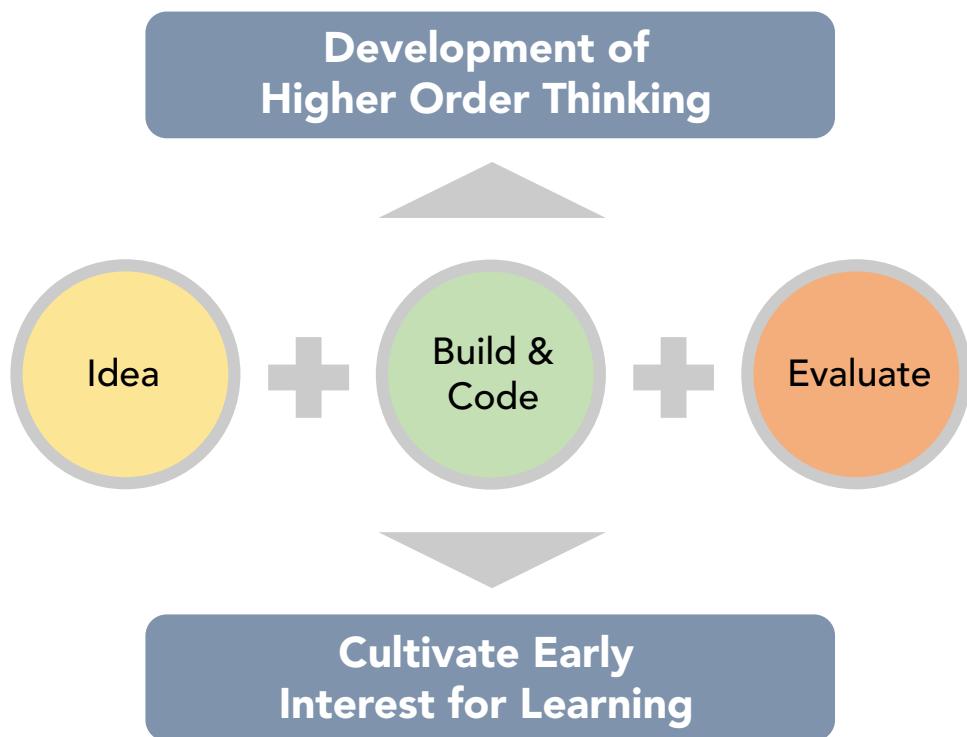
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# RoboThink Philosophy

## :Intro

RoboThink Programs cultivate creativity, problem-solving capabilities and an interest for learning through project based robotics, coding and engineering activities.



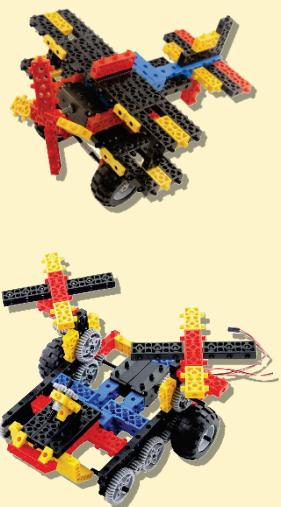
## Concept

Critical thinking, problem-solving, engineering and programming will be essential skills for the 21<sup>st</sup> century world. Prepare your child for a 21<sup>st</sup> century world with RoboThink!

# RoboThink Robotics

## What is RoboThink Robotics?

### :: Introduction



RoboThink's Robotics Programs is a structured and curriculum based engineering program where K-8 students build dynamic robotics models based on the innovative RoboThink Robotics Kit.

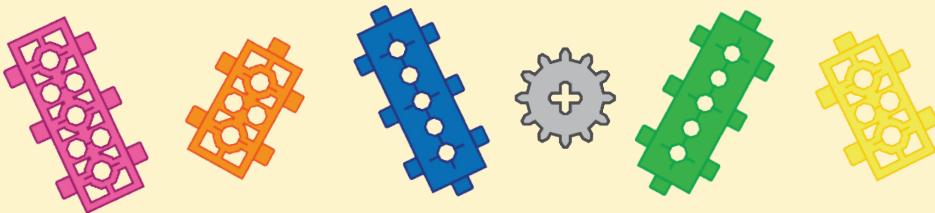
### :: Academic Benefits

- Engages visual, auditory and kinesthetic learning
- Organizational, Teamwork, Communication Skills
- Fine motor skills development
- Nurtures process oriented thinking



## Hardware

RoboThink uses a proprietary RoboThink Robotics Kit developed with ease-of-use and flexibility in mind. With no messy connectors and screws, students spend less time building, and more time thinking!



## Instruction

RoboThink Robotics lesson plans make it easy for students to learn how to build robotics models of all shapes, sizes and functions! With fun science lessons and stories, robotics has never been so fun!

**Science Lesson 6**

**Principles of Pulleys**

**What are pulleys?**

A pulley is an equipment that consists of a wheel and a cord passing through it. It changes the direction of force and is used to lift heavy objects.

**Flagpole**    **Car Jack**    **Crane**

**Fixed pulley** are the same as first class levers with a fulcrum in the middle. Not only does the size of the force change, the direction of force changes as well.

**Fixed pulley** diagram: Object gets pulled up. Rope pulls down. Weight (W) is applied downwards. Fixed pulley can lift objects from the ground.

**Movable pulley** is a pulley that moves with the load. The movable pulley allows the effort to be less than the weight of the load. It also acts as a second class lever.

**Movable pulley** diagram: The net advantage of a movable pulley is that we can use less effort to move it.

**Tower Crane** Actual Size

The machine is designed to bring heavy object to very high places.

**Actual Size**

**Size 45**

**Size 64**

**Tower Crane Parts List | Let's make the tower crane!**

AC1	AC2	AC3	AC4	AC5	AC6	AC7	AC8	AC9	AC10	AC11	AC12	AC13	AC14	AC15	AC16	AC17	AC18	AC19	AC20	AC21	AC22	AC23	AC24	AC25	AC26	AC27	AC28	AC29	AC30	AC31	AC32	AC33	AC34	AC35	AC36	AC37	AC38	AC39	AC40	AC41	AC42	AC43	AC44	AC45	AC46	AC47	AC48	AC49	AC50	AC51	AC52	AC53	AC54	AC55	AC56	AC57	AC58	AC59	AC60	AC61	AC62	AC63	AC64	AC65	AC66	AC67	AC68	AC69	AC70	AC71	AC72	AC73	AC74	AC75	AC76	AC77	AC78	AC79	AC80	AC81	AC82	AC83	AC84	AC85	AC86	AC87	AC88	AC89	AC90	AC91	AC92	AC93	AC94	AC95	AC96	AC97	AC98	AC99	AC100	AC101	AC102	AC103	AC104	AC105	AC106	AC107	AC108	AC109	AC110	AC111	AC112	AC113	AC114	AC115	AC116	AC117	AC118	AC119	AC120	AC121	AC122	AC123	AC124	AC125	AC126	AC127	AC128	AC129	AC130	AC131	AC132	AC133	AC134	AC135	AC136	AC137	AC138	AC139	AC140	AC141	AC142	AC143	AC144	AC145	AC146	AC147	AC148	AC149	AC150	AC151	AC152	AC153	AC154	AC155	AC156	AC157	AC158	AC159	AC160	AC161	AC162	AC163	AC164	AC165	AC166	AC167	AC168	AC169	AC170	AC171	AC172	AC173	AC174	AC175	AC176	AC177	AC178	AC179	AC180	AC181	AC182	AC183	AC184	AC185	AC186	AC187	AC188	AC189	AC190	AC191	AC192	AC193	AC194	AC195	AC196	AC197	AC198	AC199	AC200	AC201	AC202	AC203	AC204	AC205	AC206	AC207	AC208	AC209	AC210	AC211	AC212	AC213	AC214	AC215	AC216	AC217	AC218	AC219	AC220	AC221	AC222	AC223	AC224	AC225	AC226	AC227	AC228	AC229	AC230	AC231	AC232	AC233	AC234	AC235	AC236	AC237	AC238	AC239	AC240	AC241	AC242	AC243	AC244	AC245	AC246	AC247	AC248	AC249	AC250	AC251	AC252	AC253	AC254	AC255	AC256	AC257	AC258	AC259	AC260	AC261	AC262	AC263	AC264	AC265	AC266	AC267	AC268	AC269	AC270	AC271	AC272	AC273	AC274	AC275	AC276	AC277	AC278	AC279	AC280	AC281	AC282	AC283	AC284	AC285	AC286	AC287	AC288	AC289	AC290	AC291	AC292	AC293	AC294	AC295	AC296	AC297	AC298	AC299	AC300	AC301	AC302	AC303	AC304	AC305	AC306	AC307	AC308	AC309	AC310	AC311	AC312	AC313	AC314	AC315	AC316	AC317	AC318	AC319	AC320	AC321	AC322	AC323	AC324	AC325	AC326	AC327	AC328	AC329	AC330	AC331	AC332	AC333	AC334	AC335	AC336	AC337	AC338	AC339	AC340	AC341	AC342	AC343	AC344	AC345	AC346	AC347	AC348	AC349	AC350	AC351	AC352	AC353	AC354	AC355	AC356	AC357	AC358	AC359	AC360	AC361	AC362	AC363	AC364	AC365	AC366	AC367	AC368	AC369	AC370	AC371	AC372	AC373	AC374	AC375	AC376	AC377	AC378	AC379	AC380	AC381	AC382	AC383	AC384	AC385	AC386	AC387	AC388	AC389	AC390	AC391	AC392	AC393	AC394	AC395	AC396	AC397	AC398	AC399	AC400	AC401	AC402	AC403	AC404	AC405	AC406	AC407	AC408	AC409	AC410	AC411	AC412	AC413	AC414	AC415	AC416	AC417	AC418	AC419	AC420	AC421	AC422	AC423	AC424	AC425	AC426	AC427	AC428	AC429	AC430	AC431	AC432	AC433	AC434	AC435	AC436	AC437	AC438	AC439	AC440	AC441	AC442	AC443	AC444	AC445	AC446	AC447	AC448	AC449	AC450	AC451	AC452	AC453	AC454	AC455	AC456	AC457	AC458	AC459	AC460	AC461	AC462	AC463	AC464	AC465	AC466	AC467	AC468	AC469	AC470	AC471	AC472	AC473	AC474	AC475	AC476	AC477	AC478	AC479	AC480	AC481	AC482	AC483	AC484	AC485	AC486	AC487	AC488	AC489	AC490	AC491	AC492	AC493	AC494	AC495	AC496	AC497	AC498	AC499	AC500	AC501	AC502	AC503	AC504	AC505	AC506	AC507	AC508	AC509	AC510	AC511	AC512	AC513	AC514	AC515	AC516	AC517	AC518	AC519	AC520	AC521	AC522	AC523	AC524	AC525	AC526	AC527	AC528	AC529	AC530	AC531	AC532	AC533	AC534	AC535	AC536	AC537	AC538	AC539	AC540	AC541	AC542	AC543	AC544	AC545	AC546	AC547	AC548	AC549	AC550	AC551	AC552	AC553	AC554	AC555	AC556	AC557	AC558	AC559	AC560	AC561	AC562	AC563	AC564	AC565	AC566	AC567	AC568	AC569	AC570	AC571	AC572	AC573	AC574	AC575	AC576	AC577	AC578	AC579	AC580	AC581	AC582	AC583	AC584	AC585	AC586	AC587	AC588	AC589	AC590	AC591	AC592	AC593	AC594	AC595	AC596	AC597	AC598	AC599	AC600	AC601	AC602	AC603	AC604	AC605	AC606	AC607	AC608	AC609	AC610	AC611	AC612	AC613	AC614	AC615	AC616	AC617	AC618	AC619	AC620	AC621	AC622	AC623	AC624	AC625	AC626	AC627	AC628	AC629	AC630	AC631	AC632	AC633	AC634	AC635	AC636	AC637	AC638	AC639	AC640	AC641	AC642	AC643	AC644	AC645	AC646	AC647	AC648	AC649	AC650	AC651	AC652	AC653	AC654	AC655	AC656	AC657	AC658	AC659	AC660	AC661	AC662	AC663	AC664	AC665	AC666	AC667	AC668	AC669	AC670	AC671	AC672	AC673	AC674	AC675	AC676	AC677	AC678	AC679	AC680	AC681	AC682	AC683	AC684	AC685	AC686	AC687	AC688	AC689	AC690	AC691	AC692	AC693	AC694	AC695	AC696	AC697	AC698	AC699	AC700	AC701	AC702	AC703	AC704	AC705	AC706	AC707	AC708	AC709	AC710	AC711	AC712	AC713	AC714	AC715	AC716	AC717	AC718	AC719	AC720	AC721	AC722	AC723	AC724	AC725	AC726	AC727	AC728	AC729	AC730	AC731	AC732	AC733	AC734	AC735	AC736	AC737	AC738	AC739	AC740	AC741	AC742	AC743	AC744	AC745	AC746	AC747	AC748	AC749	AC750	AC751	AC752	AC753	AC754	AC755	AC756	AC757	AC758	AC759	AC760	AC761	AC762	AC763	AC764	AC765	AC766	AC767	AC768	AC769	AC770	AC771	AC772	AC773	AC774	AC775	AC776	AC777	AC778	AC779	AC780	AC781	AC782	AC783	AC784	AC785	AC786	AC787	AC788	AC789	AC790	AC791	AC792	AC793	AC794	AC795	AC796	AC797	AC798	AC799	AC800	AC801	AC802	AC803	AC804	AC805	AC806	AC807	AC808	AC809	AC810	AC811	AC812	AC813	AC814	AC815	AC816	AC817	AC818	AC819	AC820	AC821	AC822	AC823	AC824	AC825	AC826	AC827	AC828	AC829	AC830	AC831	AC832	AC833	AC834	AC835	AC836	AC837	AC838	AC839	AC840	AC841	AC842	AC843	AC844	AC845	AC846	AC847	AC848	AC849	AC850	AC851	AC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# RoboThink Robotics

## Curriculum & Programs

### Curriculum

The RoboThink Robotics Curriculum is divided into 5 levels.

1

#### **Cells**

Introduction to RoboThink cells and building basic block based models.

2

#### **Gears & DC Motor**

Introduction to various gears, axles as well as the DC Motor. Study of transforming and transferring motion.

3

#### **Mainboard & Wired Remote**

Introduction to intermediate level electronics. Study of robots that move and are controllable.

4

#### **Sensors**

Introduction to various types of sensors. Study of autonomous robots and understanding sensor electronics.

5

#### **Wireless Remote & Servo Motor**

Introduction to advanced electronics. Study of using high precision parts and application of all parts to build advanced designs.

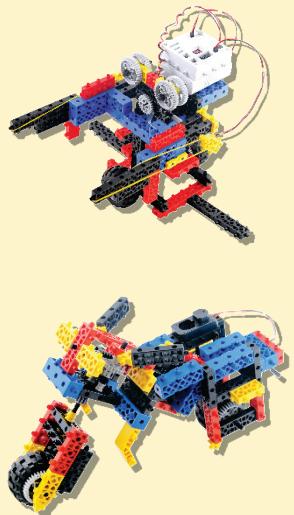
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# RoboThink Programming

## What is RoboThink Programming?

### :: Introduction

**RoboThink Programming teaches students K-8 how to program with the RoboThink Robotics Kit, Rocomi or Rocode and our workbooks.**



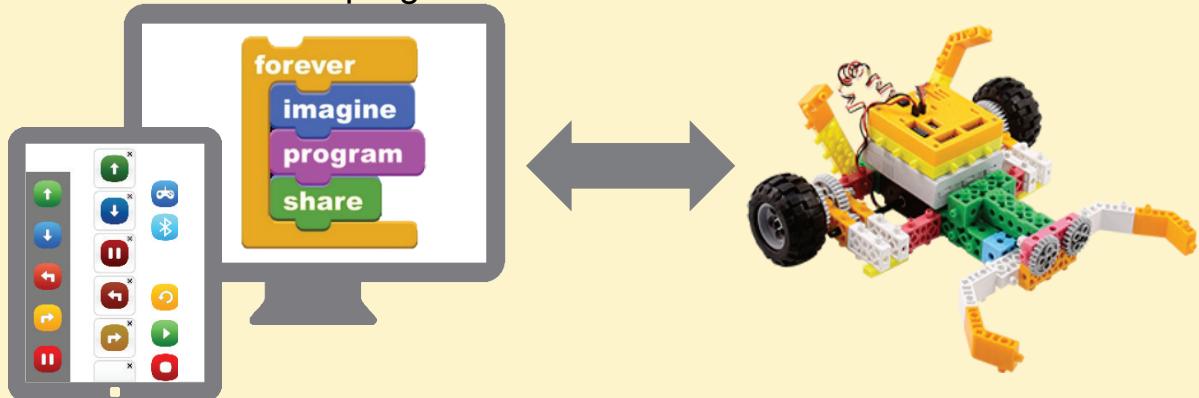
### :: Academic Benefits

- Study of real programming concepts
- Application of hardware and software solutions to problems
- Encourages self-motivated and exploratory learning
- Early exposure to technology and understanding how computers work



## Hardware

The RoboThink Programming Curriculum utilizes the power of the RoboThink Robotics Kit and Rocomi or Rocode, coding platform for students developed specifically to work with Robotics Kits. Students are able to build and code robots that runs programs students write!



## Instruction

Unlike other programs, RoboThink Programming offers a step by step lesson plans and accompanying workbooks for the entirety of the program!

# RoboThink Programming

## Curriculum & Programs

### Curriculum

The RoboThink Coding Program is divided into 6 levels.

#### **1** *Movement*

Introduction to coding software. Study of basics sequencing and moving robots using sequencing.

#### **2** *Sensory*

Use of IR and LED sensors in a variety of robotics projects. If & Else concepts explored in depth.

#### **3** *Analogue*

Study of analog values from sensors and applying values in meaningful solutions to challenges.

#### **4** *Variables*

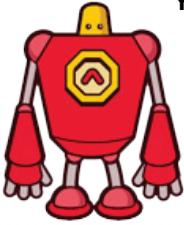
Study of variables and application of variables in advanced code and robotics.

#### **5** *Functions*

Study and practical utilization of functions as a way of optimization of robotics coding.

#### **6** *Lists*

Study of lists, databases and application of lists in advanced code and robotics



## Class

RoboThink STEM Class covers robotics, coding and engineering concepts comprehensively. Every week, students build models, study coding concepts and complete fun engineering projects.

## Weekly Class

## Camp

RoboThink Robotics Camps are offered in 3 different levels: Beginner, Intermediate and Advanced. Students are taken through an accelerated program where robotics and/or coding concepts are covered and explored through project based lessons.

Offered as one week camp



