DENE STEAM

Dillon Pilot Day Plan

A one-day, low-cost workshop for about 10 youth plus one Talking Trail Marker prototype

Dillon, Saskatchewan · Buffalo River Dene Nation area

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Draft for community review. Due Sunday night, 15 November 2026.
Prices checked 14 November 2026 (America/Regina). All figures CAD, before tax.

10 youth	9:30 to 3:30	$1,350.89	[TO FILL]
About ten, in pairs	One day	Working total, before tax and honorarium	Elder honorarium set by the community

1. Plan summary

Dene STEAM, led by Executive Director Trent Billette, can run a one-day low-cost pilot in Dillon, Saskatchewan (Buffalo River Dene Nation area) for about 10 youth, before the larger grants are in place. The day runs from 9:30 a.m. to 3:30 p.m. Youth work in pairs with six BBC micro:bit v2 Go kits (five boards, one for every two youth, plus one reserved for the trail marker), try two Cutebot cars as a shared station, and build five solder-free Word of the Day robots that play an Elder-recorded word. The group also builds one solar Talking Trail Marker prototype, using the same parts and design as the existing Dene STEAM build guide, and tests it outside if the weather allows. Parts, lunch, an estimated shipping allowance and a 10 percent contingency come to $1,350.89 CAD, before GST and PST, and before the Elder honorarium, which the community sets. Venue, date, Elder(s) and adult helpers are still to fill.

Of the kit subtotal of $1,228.08, $668.16 was verified on a Canadian store page opened for this plan, and $559.92 is marked as an estimate (lunch, shipping, solar panel, post, silicone, step bit, bracket and a USB drive).

This document does not spend money, place orders, or reach out to anyone. Nothing here is a funding application. No ceremony and no sacred items are planned.

2. Kit and supply list

Sharing: one micro:bit for every two youth (5 boards), plus a sixth Go kit reserved for the trail marker. USB cables and AAA packs come in the Go kits. Two Cutebot cars are a shared morning station, not one car per pair, to keep the pilot low-cost. Word of the Day robots use the micro:bit A and B buttons. The trail marker uses the waterproof 16 mm button and the solar parts from the existing build guide. Youth builds are solder-free.

Prices are CAD, from Canadian store pages opened 14 November 2026, unless marked estimate. GST, PST and final shipping to Dillon are not in the line totals.

Item	Qty	Unit	Line total	Store / status
Workshop boards and cars				
BBC micro:bit v2 Go starter kit	6	$28.95	$173.70	PiShop.ca verified
ELECFREAKS Smart Cutebot (without micro:bit)	2	$55.95	$111.90	Robotix Education verified
Word of the Day and marker electronics				
DFPlayer Mini MP3 module	6	$8.43	$50.58	RobotShop.ca verified
Speaker, 3 in, 4 ohm, 3 W	6	$3.95	$23.70	PiShop.ca verified
SanDisk Ultra 32 GB microSDHC	2	$30.46	$60.92	Amazon.ca verified
USB microSD card reader	1	$2.95	$2.95	PiShop.ca verified
Kitronik edge breakout board, pre-built	6	$7.95	$47.70	PiShop.ca verified
Mini breadboard, 170 tie points	6	$2.95	$17.70	PiShop.ca verified
2x AA battery holder with switch, JST-PH	1	$2.45	$2.45	PiShop.ca verified
1k ohm resistors, pack of 25	1	$1.95	$1.95	PiShop.ca verified
Male-to-female jumper wires, 40-pack, 20 cm	1	$2.95	$2.95	PiShop.ca verified
Female-to-female jumper wires, 40-pack, 20 cm	1	$2.95	$2.95	PiShop.ca verified
Male-to-male jumper wires, 40-pack, 20 cm	1	$2.95	$2.95	PiShop.ca verified
Energizer Ultimate Lithium AA, 8-pack	1	$24.99	$24.99	Amazon.ca verified
Trail marker enclosure and button				
DMWD 16 mm IP67 momentary metal push button	1	$27.91	$27.91	Amazon.ca verified
LMioEtool IP65 box, 150 x 100 x 70 mm, clear lid	1	$20.99	$20.99	Amazon.ca verified
Solar kit for one land marker				
6 V 2 W solar panel with about 250 mm wires (uxcell or equivalent)	1	$25.92	$25.92	Amazon.ca estimate
Adafruit bq24074 USB / DC / solar Li-ion charger	1	$23.95	$23.95	PiShop.ca verified
EEMB 3.7 V 2000 mAh LiPo battery, JST 2.0 mm	1	$25.69	$25.69	Amazon.ca verified
uxcell 10K NTC 3950 thermistors, 50-pack	1	$12.39	$12.39	Amazon.ca verified
Pololu S7V7F5 5 V step-up/step-down regulator	1	$9.99	$9.99	Canada Robotix verified

Item	Qty	Unit	Line total	Store / status
MonkMakes Power for micro:bit (3.3 V)	1	$13.95	**$13.95**	PiShop.ca verified
Male 2.1 mm DC plug to screw terminal	2	$2.95	**$5.90**	PiShop.ca verified
Panel bracket, cable gland and outdoor wire	1	$15.00	**$15.00**	Hardware store estimate
Install materials and consumables				
Pressure-treated post, straps, stainless screws and a sign board	1	$35.00	**$35.00**	Home Depot / local estimate
Outdoor silicone, desiccant pack, tape, zip ties and speaker mesh	1	$20.00	**$20.00**	Hardware store estimate
16 mm step drill bit (skip if you already have one)	1	$25.00	**$25.00**	Hardware store estimate
USB flash drive for the community archive	1	$15.00	**$15.00**	Electronics store estimate
Food				
Lunch and snacks for about 15 people	1	$249.00	**$249.00**	Local provider estimate
Shipping (estimate)				
Northern shipping allowance, 4 parcels	4	$43.75	**$175.00**	Carrier estimate

Kit subtotal (parts, lunch and shipping estimate)	$1,228.08
Verified on a store page this turn	$668.16
Estimate	$559.92
10 percent contingency	$122.81
Working total, before tax and honorarium	**$1,350.89**
Elder honorarium (community sets the amount)	**[TO FILL]**
GST and PST	unknown / estimate
Shipping to Dillon (already in the subtotal as an estimate)	unknown until checkout

Kit notes, tax, and the ILC draft

How the robots and the marker are built

- Word of the Day: five solder-free robots, one per pair, using the same micro:bits as the morning session. Each uses a DFPlayer, speaker, breakout, breadboard, 1k resistor and jumper wires. Audio plays from an Elder-approved file on a shared or assigned card.
- Talking Trail Marker: one prototype that matches the existing Dene STEAM build guide (micro:bit, breakout, breadboard, DFPlayer, speaker, waterproof button, IP65 box, AA backup, and the solar upgrade: 6 V panel, bq24074 charger, 2000 mAh Li-ion, 10K thermistor, 5 V regulator, and MonkMakes 3.3 V power). The red 3V-to-rail wire must be removed when the solar power board is used.
- An adult drills the box. Any soldering (the solar cold-sensor) is adult-only, with eye protection and ventilation, or is left for a short adult session after the day. The outdoor test can run on the AA pack.

Tax and shipping

- Saskatchewan's usual combined GST (5 percent) and PST (6 percent) is 11 percent, but some items may be treated differently. Tax is not included in the working total.
- Shipping to Dillon is an estimate: 4 parcels x ($20 base + $23.75 UPS Canada 2026 Remote surcharge). Dillon's actual surcharge tier was not confirmed. If a Super Remote surcharge applied, the cost would be much higher. Parts will likely come from more than one seller.

Already counted in the ILC draft

Do not invent a second full-year kit. The draft Canadian Heritage ILC application (not submitted) already counts 2 micro:bit v2 10-packs, 10 Cutebot cars, 4 Word of the Day robots, batteries and tools ($1,593), northern shipping ($438),

and 6 solar Talking Trail Markers ($1,561). Parts bought for this pilot can later be counted toward that inventory if the grant is approved. Subtract them before anyone orders the full year set. Program figures for the full year (about 20 youth, 1 April 2027 to 31 March 2028, draft ask of $80,996 CAD) are estimates and have not been submitted.

What is not in the kit

- Laptops or Chromebooks. The venue needs a few computers or tablets so youth can send code to the micro:bit.
- A Zoom recorder. If an Elder consents to a short test recording, use a community phone or laptop, keep the file on that device, and copy it only to a community-held USB drive. Never upload recordings to the internet, social media or AI companies.
- Stock cautions: the Amazon 32 GB microSD listing showed only 1 card left (confirm a second seller). Confirm Cutebot stock at Robotix Education before ordering. Cheaper cards and the build-guide Li-ion cell were out of stock this turn.

Line notes (short form)

- Go kits were $28.95 and in stock at PiShop, cheaper than buying boards, cables and holders apart, and much cheaper than a 10-pack for a 6-board pilot.
- A2D Electronics DFPlayer was $3.25 but out of stock; RobotShop $8.43 was used.
- microSD: cheaper 16 GB options were out of stock. Two 32 GB cards at $30.46 are listed, with a stock warning.
- 16 mm button: the in-stock Amazon listing was $27.91, higher than a $13.99 figure seen earlier the same day on a different listing.
- Li-ion: PiShop 2000 mAh was out of stock; an in-stock EEMB 2000 mAh JST cell at $25.69 on Amazon.ca was used. Check polarity.
- Solar panel, post, silicone, step bit, bracket and USB drive are estimates. A Home Depot post page opened but showed no price. Best Buy pages were blocked (403).
- Lunch uses the same $16.60 northern-adjusted rate as the ILC camp draft (SHA 2025 North West food-basket difference).

3. Agenda · 9:30 a.m. to 3:30 p.m.

Times are a guide. The Elder(s) and the lead adult can shift the day. No ceremony and no sacred items are planned. A welcome is led by an Elder only as Elders choose.

9:00 to 9:30	**Set up** Adults set tables, pair kits, check consent forms, place the first aid kit, and lay out outdoor clothing.
9:30 to 9:50	**Welcome** Elder(s), as they choose, and the project lead. Land and introductions, in the way the Elder(s) wish. No ceremony is scheduled. A plain picture of the day.
9:50 to 10:10	**Safety and consent** Allergies, washrooms, two-adult rule, tool rules, and a recap of photo and recording consent. Anyone without a signed form does not take part in photos or recordings.
10:10 to 11:10	**micro:bit basics, then Cutebot** Youth in 5 pairs. On-board buttons, LED, a name or word scroll. Then pairs rotate through the 2 Cutebot cars so everyone gets a short turn.
11:10 to 11:25	**Snack break** Water and a snack. Check that youth are warm enough if the room is cool.
11:25 to 12:25	**Word of the Day robot build** Solder-free breadboard build in pairs. Load one Elder-approved word only if consent is already in place. Play it with micro:bit buttons A and B.
12:25 to 1:10	**Lunch** Sit-down lunch and quiet time. Adults stay on the two-adult rule.
1:10 to 2:20	**Talking Trail Marker prototype** Whole group, with jobs from the build guide. Youth wire, code and prepare the sign. An adult drills the box and, if time and ventilation allow, solders the solar cold-sensor. The marker can also be tested later on the AA pack.
2:20 to 2:35	**Break and dress for outdoors** If the weather is too cold or windy, skip the outdoor test and use a sheltered doorway, or stay inside.
2:35 to 3:05	**Test outside, or a sheltered backup** Hold the button. Listen. Keep the time outside short. At least 3 adults. Lithium AA pack ready as backup.
3:05 to 3:30	**Share-back and pickup** Each pair shows what they built. Elder(s) review the robot and marker audio if they wish. Pack kits. Sign-out to the named pickup person.

4. What Elders do

Elders lead. Their word is final on what is shared.

- Choose the words and place names. Elder name(s): [TO FILL]. Dene words and spellings: [TO FILL]. Never guess a word or a spelling. Leave it blank and ask.
- Decide what is shared, and where it may be played (the indoor robot, the trail marker, or not at all).
- Consent to any recording, every time, in writing or as a recorded yes, before anyone presses record. An Elder can stop or take a recording back at any time.
- Review the robot and the marker audio before youth play it for a wider group.
- A welcome at the start of the day is offered only as Elders choose. No ceremony and no sacred items are planned for this pilot.

Recordings stay here

Recordings stay on local, community-held devices only. They are copied only to a community USB drive or the band archive drives named in the trail marker guide. They are never uploaded to the internet, social media or AI companies.
This follows OCAP. OCAP is a registered trademark of the First Nations Information Governance Centre (FNIGC).

5. Youth safety checklist

This checklist is a planning aid. It does not claim to meet any legal standard. Trent should confirm local rules with Buffalo River Dene Nation and with the school or youth centre before the day is run.

- Adult to youth ratios. Suggest at least 2 screened adults for 10 youth indoors, and at least 3 adults for the outdoor test. Add more if younger youth take part.
- Two-adult rule. No adult is alone with youth. Washroom trips and one-to-one help follow the same rule.
- Screening. Adults who work with youth should be screened in the way the Nation and the venue require (for example a vulnerable-sector check). [TO FILL: named adults].
- Parent or guardian consent for each young person to take part, signed before the day.
- Separate photo and recording consent. A young person may take part in the workshop without being photographed or recorded. No photos or recordings of anyone who did not give consent.
- Allergies and medical information collected in advance, kept private, and known to the lead adults. Confirm the lunch with this list.
- Tool and soldering safety. Youth builds are solder-free. An adult does all drilling. If the solar thermistor is soldered on the day, only an adult does it, with eye protection and ventilation, away from youth food tables. Prefer to leave that step for a short adult session if the room is not well ventilated.
- Battery safety. Batteries go in last. Never short the wires. Use the correct charger only for the Li-ion cell. Do not charge the Li-ion cell below 0°C. Do not leave lithium cells in a hot car or in direct sun. Damaged cells are not used.
- Outdoor and weather plan. Northern Saskatchewan can be very cold from November through spring. Keep the outdoor test short. Youth bring winter coats, hats, mitts and boots. Have a sheltered or indoor backup. If wind, snow or extreme cold makes the test unsafe, stay inside. The AA pack is the winter backup, as in the build guide.
- Emergency contacts for each young person, and for local emergency services, printed and carried by the lead adult. [TO FILL].
- First aid kit on site, and at least one adult with current first aid training. [TO FILL: who].
- Pickup plan. Each young person leaves only with the person named on their consent form, after a sign-out. A backup pickup name is listed. The day ends at 3:30 p.m.
- Small parts. Keep buttons, wires and small parts away from little brothers and sisters who may visit at pickup.

6. Open items · [TO FILL]

- Venue in Dillon (for example the youth centre), with written confirmation, washrooms, tables, power, and a way to get online or use MakeCode.
- Date. This plan is ready for review by Sunday night, 15 November 2026. The workshop date itself is still open.
- Elder(s) invited, with consent: [TO FILL].
- Dene words and place names, with approved spelling: [TO FILL].
- Elder honorarium, amount set by the community: [TO FILL].
- Screened adults (at least 2, preferably 3 or more), including who has first aid: [TO FILL].
- Lunch provider, menu, and allergy checks: [TO FILL].
- Parent or guardian consent forms, and separate photo and recording consent forms.
- Confirm Cutebot stock at Robotix Education, and a second microSD seller (only 1 card was left on the Amazon listing).
- Confirm shipping cost and service to Dillon (S0M 0S0 tier not confirmed).
- Confirm local youth-safety rules with the Nation and the school or youth centre.

Sources and limits

Prices were checked on Saturday, 14 November 2026 (America/Regina) from Canadian store pages opened for this plan: PiShop.ca, RobotShop.ca, Robotix Education, Canada Robotix, and Amazon.ca. Elmwood Electronics no longer takes orders (it merged with PiShop).

Pages that did not give a usable price this turn: Best Buy Canada returned HTTP 403 (no price shown). A Home Depot Canada 4x4x6 post page opened but showed no price. The exact uxcell 6 V 2 W panel page did not show a live Amazon.ca price this evening. Cheaper microSD packs at PiShop and Canada Robotix were out of stock. A2D Electronics' DFPlayer and the PiShop 2000 mAh Li-ion cell were out of stock.

Trail marker parts follow the existing Dene STEAM build guide, parts list and solar design. No Dene words, Elder names, partners or local speaker counts were invented for this plan.

Questions

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Trent Billette, Executive Director, Dene STEAM